

**Self-reported exposure data in epidemiologic studies:
measurement errors and missing values**

by

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Thesis presented for the degree of Philosophiae Doctor (Ph.D.)



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Christine L. Parr

LIST OF PAPERS

The work for the present thesis project includes the following papers, which are referred to in the text by the Roman numerals I to IV:

- I. Parr CL, Veierod MB, Laake P, Lund E, Hjartaker A. Test-retest reproducibility of a food frequency questionnaire (FFQ) and estimated effects on disease risk in the Norwegian Women and Cancer Study (NOWAC). *Nutrition Journal* 2006;5:4.
- II. Parr CL, Hjartaker A, Scheel I, Lund E, Laake P, Veierod MB. Comparing methods for handling missing values in food frequency questionnaires and proposing k nearest neighbors imputation: effects on dietary intake in the Norwegian Women and Cancer Study (NOWAC). *Public Health Nutrition* 2007; (accepted: doi:10.1017/S1368980007000365).
- III. Veierod MB, Parr CL, Lund E, Hjartaker A. Reproducibility of self-reported melanoma risk factors in a large cohort study of Norwegian women. *Melanoma Research* 2007; (accepted).
- IV. Parr CL, Hjartaker A, Laake P, Lund E, Veierod MB. Recall bias in melanoma risk factors and measurement error effects: a nested case-control study within the Norwegian Women and Cancer Study. *American Journal of Epidemiology* (under revision for resubmission).

ABSTRACT

In observational epidemiology many studies rely on self-reported exposure information, which is prone to measurement errors and missing values. This may subsequently lead to biased estimates of disease risk or other outcome measures. Therefore, it is important to assess data quality. The subject of this thesis project is measurement error and missing data analysis with emphasis on self-reported data from postal questionnaires used in the Norwegian Women and Cancer Study (NOWAC), an ongoing population-based cohort study. NOWAC was initiated in 1991 and currently includes more than 172,000 women recruited at age 30-70 years.

The present work is based on two data collections. In 2002, a random sample of 2,000 NOWAC women (age 46–75 years) twice received an eight-page exposure follow-up questionnaire on health and lifestyle factors, with a test-retest interval of about 3 months (response 75%). The objective was to study the reproducibility of food frequency questionnaire (FFQ) data, and melanoma risk factors (host factors and UV exposures). The test-retest study was also used to investigate missing values and the effect of different imputation methods on dietary intake data. In 2004, a nested case-control study was conducted within NOWAC to study recall bias in melanoma risk factors (women aged 41-76 years). The response was 78% (163 of 208) for cases, and 77% (1,596 of 2,080) for controls.

The observed level of reproducibility for FFQ data (reliability coefficients from 0.5–0.8) is within the reported range for similar questionnaires, but may still attenuate disease risk estimates. Although alcohol intake had relatively high reproducibility (Pearson's $r = 0.72$), odds ratio (OR) estimates for hypertension were attenuated compared to estimates corrected by regression calibration. Imputation of missing values with retest values increased total energy intake, but the largest difference was observed for k nearest neighbors imputation (KNN), which was adapted and applied to FFQ data. KNN increased median daily energy intake by 11% when compared to the null value.

The overall reproducibility of melanoma risk factors was acceptable and not affected by age, education, or skin color. In particular, the study added new knowledge about the reproducibility of sunscreen use and sun protection factor (SPF). Reproducibility was good for sunscreen use (yes/no) on specific occasions ($0.64 \leq \kappa \leq 0.74$) and the corresponding SPF. For SPF on sunbathing vacations to southern latitudes Spearman's r_s was 0.73 (today) and 0.71 (10 years ago). For sunscreen brands, reproducibility was lower for use (yes/no) ($0.31 \leq \kappa \leq 0.60$) than for SPF ($0.38 \leq r_s \leq 0.87$).

For recall bias in melanoma risk factors, exposure information collected at enrolment in 1991-1997 and in 2004 was compared, stratified on case-control status. Shifts in only the case responses were observed for hair color and for skin color after chronic sun exposure. Larger shifts in cases than in controls were observed for nevi. Differences in OR estimates for melanoma indicated differential measurement error. In conclusion, the limited body of literature indicates that retrospective measures of melanoma risk factors are susceptible to recall bias, but the results are not consistent for the different exposures.

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LIST OF ABBREVIATIONS

Abbreviation	Explanation	Paper
BCC	Basal cell carcinoma	III
BMI	Body mass index (kg/m^2)	I
BMS	Between-person mean square	I
BSA	Body surface area (m^2)	IV
CI	Confidence interval	I-IV
EMS	Residual mean square	I
EPIC	European Prospective Investigation into Cancer and Nutrition	I, II, III
FFQ(s)	Food frequency questionnaire(s)	I, II
ICC(s)	Intraclass correlation coefficient(s)	I, III
kJ	Kilo joule	I, II
KNN	k nearest neighbors imputation	II
MAR	Missing at random	II
MI	Multiple imputation	II
MJ	Mega joule	I
NMAR	Not missing at random	II
NOK	Norwegian kroner	II, III, IV
NOWAC	Norwegian Women and Cancer study	I-IV
OR	Odds ratio	I, IV
RE	Retinol equivalents	I, II
RMSE	Root mean squared error	II
SCC	Squamous cell carcinoma	III
SD	Standard deviation	I, IV
SEM	Standard error of the mean	I
SPF	Sun protection factor	III
UV	Ultraviolet	III
WMS	Within-person mean square	II

LIST OF SYMBOLS

Symbol	Explanation	Paper
κ	Simple kappa coefficient	I, III
κ_w	Weighted kappa coefficient	I, III, IV
P_A	Percent agreement	I, III, IV
$P_{A\pm 1}$	Percent agreement ± 1 category	III, IV
Q1	Lower quartile (25 th percentile)	II
Q3	Upper quartile (75 th percentile)	II
r_s	Spearman's correlation coefficient	I, III
r	Pearson's correlation coefficient	I

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1 Introduction

1.1. Rationale and significance of thesis

Epidemiologic research is often concerned with finding and assessing the effect of risk factors on disease. However, many of the risk factors (also called exposures or predictors) of interest are difficult to measure accurately at the level of individuals, and the resulting measurement error or misclassification may introduce bias in estimates of disease risk. This is of concern, as lifestyle guidelines to reduce disease risk to a large extent are based on the results of epidemiologic research, and even small differences in relative risk may have profound public health implications.

This thesis project is a contribution to the developing fields of measurement error and missing data analysis with emphasis on self-reported exposures in observational epidemiology. The work is also part of the quality assessment of data collected by postal health- and lifestyle questionnaires in the Norwegian Women and Cancer Study (NOWAC), an ongoing population-based cohort study. Within NOWAC the work has been limited to two main exposures: dietary intake and risk factors for cutaneous malignant melanoma (hereafter called melanoma), which include different ultraviolet (UV) exposures and host factors. The quality of the exposure data was assessed in terms of reproducibility, missing values, and recall bias, which may all be important sources of bias. For many exposures, including dietary intake and melanoma risk factors, these aspects of data quality have either been little studied, or the effects on disease risk or other outcomes are often neglected.

Part of the present work is based on a large reproducibility study of a health- and lifestyle questionnaire used in NOWAC with the possibility of studying a wide range of exposures, including data from a food frequency questionnaire (FFQ) section and a melanoma risk factor section. In the context of the current literature, the reproducibility of FFQ data have been studied more extensively than for melanoma risk factors, but for both exposures there are few examples of studies where reproducibility data have been used to correct estimates of disease risk. Missing values in FFQ data is a methodological problem in dietary epidemiology that is related to measurement errors, but less recognized. The present work includes an assessment of missing values in FFQ data from NOWAC, and the effects on dietary intake when missing values are handled by different imputation methods to “fill in” plausible values.

The rest of the work is based on a case-control study nested within the NOWAC cohort to study recall bias in melanoma risk factors. In light of public health campaigns to reduce the incidence of melanoma in Norway and other Western countries, self-reports of melanoma risk factors may be more prone to recall bias than many other exposures.

1.2. Thesis objectives

The general objective of the present thesis project was to study measurement errors and missing values in self-reported questionnaire data, effects on outcomes, and correction methods with applications to epidemiologic studies. The specific objectives of Papers I-IV were:

Paper I

To assess the test-retest reproducibility of FFQ data using different statistical measures, and to study how measurement error in a continuous dietary intake variable can affect estimates of disease risk by applying the correction method of regression calibration.

Paper II

To assess the magnitude of missing values in FFQ data, to adapt and apply the k nearest neighbors imputation method to the data, and to study the effect of different imputation methods on calculated dietary intake.

Paper III

To assess the rest-retest reproducibility of melanoma risk factors, including the less studied risk factors of sunscreen use and the sun protection factor of sunscreens, and to investigate reproducibility in relation to subject characteristics.

Paper IV

To assess recall bias in melanoma risk factors using a nested case-control design, to investigate the effect of time since diagnosis on recall, and the effect of differential and nondifferential measurement errors on estimates of melanoma risk.

1.3. Thesis outline

Chapter 2 provides theoretical background information of relevance to Papers I-IV. Chapter 3 describes the materials and methods used. The results of Papers I-IV are then summarized in chapter 4 and discussed in chapter 5. Some future perspectives are presented in chapter 6.

2 Theoretical background

2.1. Applied epidemiologic study designs

Two study designs are of particular relevance to this thesis project and will be described: the prospective cohort design, and the nested case-control design.

The data for the present work was collected from participants in NOWAC, an ongoing prospective cohort study. A defined population of individuals (cohort) is typically followed for several years, while measuring the occurrence of disease. The main strength of the cohort study is that the exposures of interest can be determined before disease, which is a criterion in the causal pathway. However, cohort studies are resource demanding and time-consuming. Large samples are needed to study even relatively common diseases, and information on exposure and disease status must be updated during follow-up. Thus, exposure information is usually collected by self-administered questionnaires (1), but face-to-face interviews have also been used to increase compliance (2).

To estimate recall bias in a case-control setting, a nested case-control study was conducted within NOWAC. The term nested case-control study is here used to describe that the case-control study was conducted within a well defined cohort population (3). In a case-control study, a group of case individuals with a particular disease or health-related condition is compared to a control group that should not have the disease under investigation. Further, it is important that the exposure distribution among controls estimates the exposure distribution in the population that is the source of the cases (3). Case-control studies are better suited than cohort studies to study rare disease, and are often quicker and less expensive to conduct. However, information about the exposure of interest is collected after disease has occurred. Therefore, recall bias is considered a possibility in all case-control studies based on self-reporting techniques. In clinical settings this may imply interviewing (4), or self-administered questionnaires. For case-control studies that are population- or register based, or nested within a cohort, self-administered questionnaires are often most practical (5, 6).

2.2. Errors and missing values in epidemiologic studies

2.2.1. Random error and systematic error

The sources of error in epidemiologic studies may be classified in two broad categories: random error and systematic error (7, 8). Another term for systematic error is bias. Systematic error may be further classified into selection bias, information bias, and confounding. Information bias is the primary focus of the present work, but in some cases the different biases may be related, and therefore each main type is briefly described.

Selection biases are distortions that result from procedures used to select subjects, and from factors that influence study participation. Examples of selection bias include inappropriate choice of

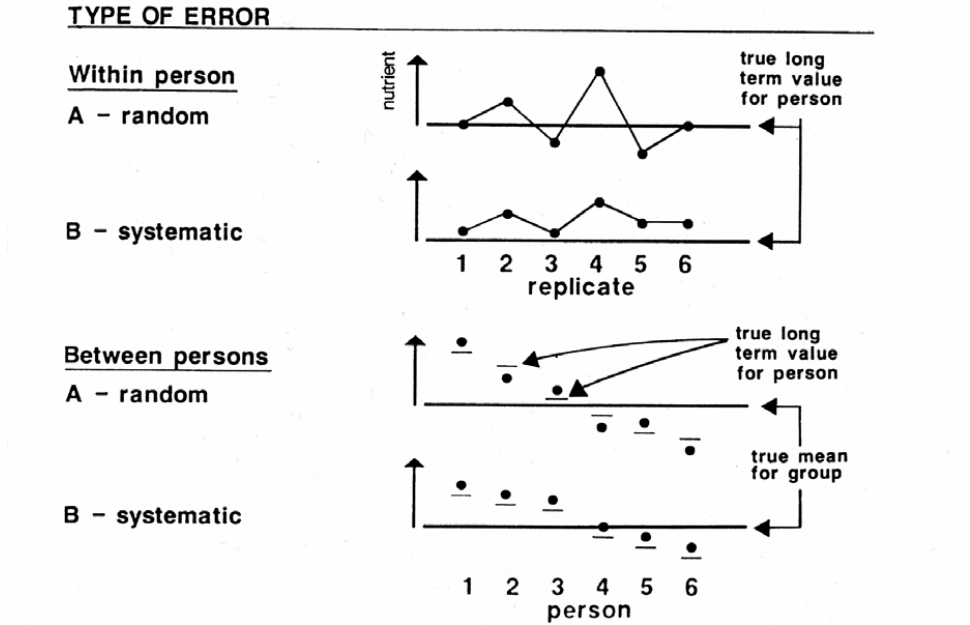
controls in case-control studies, and differential loss to follow-up in cohort studies. The common consequence of selection bias is that the association between exposure and outcome among those selected for analysis differs from the association among those eligible (9).

Confounding occurs when the effect of the exposure of interest is distorted because the effect of another factor is mistaken for, or mixed with the actual exposure effect (which may be null). For a factor to be a confounder, it must be associated with the exposure of interest in the source population, and also be a risk factor for the disease under study, but a confounder should not be affected by the exposure or the disease (7). As an example, it has been discussed if the observed association between fiber intake and colorectal cancer could be confounded by folate (10). Sources of fiber in food are also sources of folate, and both nutrients could affect the risk of colorectal cancer through plausible mechanisms. Known confounders may be controlled for in the analysis, provided that accurate information has been collected on the confounding variables.

Information bias can occur whenever there are errors in the measurement of subjects (7). Nondifferential measurement errors do not depend on the value of other variables, whereas differential measurement errors do. A common type of differential error is recall bias in case-control studies, where prior exposures may be recalled with different accuracy among cases and controls. In cohort studies, exposures are assessed before disease is diagnosed, and exposure measurement errors are therefore assumed to be nondifferential with respect to disease. Continuous variables are often referred to as having measurement error, while categorical variables have misclassification (11). However, in the present work the two terms are used interchangeably for categorical variables. For example, a person with light skin color who is classified as having dark skin color is misclassified, but the skin color variable may be described as having misclassification or measurement error.

Random error has been described as the error that remains after the systematic error has been eliminated, or error that cannot be predicted or readily explained (7). Another way to distinguish between random and systematic errors is that for random error, the average value for many repeated measures approaches the true value. For systematic errors, the average of repeated measurements does not approach the true value (8). In epidemiologic studies, random and systematic errors can occur at two different levels: within a person and between persons. This is illustrated in Figure 1.

Figure 1 Types of exposure measurement errors in epidemiologic studies, copied from (8)



In the reproducibility study conducted as part of the present work, two replicate measurements (test-retest) of a questionnaire were collected on the same subjects, which can be used to estimate random within-person error. In Paper I the reproducibility was assumed to be nondifferential. To investigate the possibility of differential error, reproducibility was assessed for categories of age, education, and skin color in Paper III, and for case-control status with regard to melanoma in Paper IV. The measurement of systematic error would require a second, superior measure of exposure. A validation or calibration study was outside the scope of the current project, but studies of systematic measurement errors have been undertaken within NOWAC (12-14).

2.2.2. Missing values

Missing values can be nondifferential or differential, similar to measurement errors. Missing values treated by imputation may be viewed as a potential source of information bias, whereas missing values treated by subject exclusion can lead to selection bias if the missing values are differential (15). Missing values may also be described by different missing data mechanisms (16). The “missing at random” (MAR) mechanism requires that the probability that a value is missing is independent of the underlying value that is missing. If missing is related to the underlying value, the mechanism is “not missing at random” (NMAR). Missing data mechanisms are crucial because many imputation methods rely on assumptions about the relationship between missing and the true underlying value of variables.

2.2.3. Effects of measurement errors and missing values in the exposure

In statistical models of disease risk, measurement errors and missing values in the exposure and covariates have many similar effects; bias in the risk estimates, loss of statistical power, and distortions of P values of statistical tests (16, 17).

The typical effect of nondifferential measurement error in the exposure variable is to dilute the association with the outcome— that is, a bias towards the null occurs (17). This is often referred to as attenuation of the effect. However, nondifferential exposure misclassification may also produce bias away from the null (false-positive effects) under certain conditions (17), and the magnitude and direction of the bias can vary between categories of a variable (18).

Differential misclassification leads to more unpredictable biases, which can either underestimate or exaggerate an effect (17). An important point is that by collapsing continuous or categorical exposure data into fewer categories, as often done in epidemiologic studies, nondifferential errors can become differential (19, 20).

Measurement error in a confounder typically results in incomplete adjustment for that confounder, and hence the association of interest may be biased either towards or away from the null, depending on the direction in which the confounding acts. A correlation between an exposure variable with measurement error and a confounder or covariate without error, may create bias in the variable without error. A positive correlation will lead to overestimation of the effect, and a negative correlation will lead to underestimation. Therefore, unadjusted estimates have been presented in Papers I and IV to study the effect of measurement errors in each exposure separately.

Measurement errors may lead to loss of statistical power by increasing data variability. Missing values mostly reduces statistical power through subject exclusions, which happens by default in many analyses. Another approach to handling missing values is imputation, or the practice of “filling in” plausible values for the skipped items. Imputation prevents loss of statistical power and selection bias caused by subject exclusion. On the other hand, it may seem conceptually problematic. Missing values usually occur for reasons unknown to the researcher, and injudicious imputation may distort risk estimates, standard errors and P values (16).

Although the effects of measurement errors and missing values are known, the magnitude and direction of the resulting biases are generally unpredictable in multivariate models of disease risk with many covariates which may be correlated, and typically include both continuous and categorical variables.

2.2.4. Correction methods for measurement errors and missing values

Statistical corrections may to some extent compensate for information bias. In the statistical literature, many methods have been proposed to correct for measurement errors (11, 17) and missing values (15, 16), and certain methods have been suggested for both problems. However, the

applications remain rather limited (21). There may be several explanations for this. The statistical literature can be quite technical with few practical examples. Correction methods are also an evolving field, and for measurement errors most procedures have been developed for linear regression problems and continuous exposure variables. Further, many procedures have not been integrated into statistical software packages. One example of an implemented procedure is the regression calibration function in STATA (*rcal*), which was used in Paper I. To apply k nearest neighbours imputation (KNN) to FFQ data, an existing function for R software had to be adapted by additional programming. An important point is that for statistical corrections to be effective, the form and degree of measurement errors or missing values must be well understood. Therefore, statistical corrections typically require additional data from validation and replication studies, or a resurvey of respondents with incomplete data.

2.3. Exposure 1: Dietary intake from a FFQ

Most large cohort studies with dietary intake assessments, including NOWAC, have used a FFQ, not only for reasons of cost and logistics, but also because the underlying principle of the food frequency approach is that average long-term diet is the conceptually important exposure, rather than intake on few specific days (22). The food frequency method is not a standardized method, but rather a group of retrospective methods providing information about how often foods were consumed during a time interval in the past. A FFQ is typically designed to capture the mean or “usual” intake during the previous year (23), but shorter or longer periods may be covered, e.g. diet in childhood (24, 25). Questions related to further details of amount and composition may also be included. FFQs can be administered by personal interview (26) or by telephone (27), or can be self-administered, including by mail (28). FFQs may be long or short, depending on the study purpose, which may be to assess total dietary intake (29), or the intake of some specific foods or nutrients (30).

An overview of the evolution of the food frequency method has been given by others (22). In brief, the method first appeared in 1947 when Burke used a food checklist to verify and clarify the information given in a dietary history interview (31). It was not until the 1960s when large epidemiologic studies were designed to investigate associations between diet and disease that the food frequency method became the primary tool for estimating food habits (32). With epidemiologic studies came the need for short questionnaires that could be administered without assistance from nutritionists (33). The mathematician Heady documented that the frequency was the primary determinant of total amount, thus providing a firm theoretical basis for the food frequency method (34). Computer technology made possible the analysis of FFQ data for large samples. Since the 1980s, much research has focused on both evaluating and improving FFQs.

A number of large cohort studies in the United States have collected dietary data by FFQ, including the Nurses Health Study (35), the Health Professionals Follow-up Study (36), the Framingham study (37), the Women’s Health Initiative (38), and the Adventist Health Study (39).

Many studies have used versions of the same FFQ, and in the United States the FFQs by Block (40) and Willett (35) or modifications of either are among the most widely used in epidemiologic research over the past decade (41). A cognitively based FFQ referred to as the Diet History Questionnaire (DHQ), has later been developed by researchers at the National Cancer Institute (41). Examples of FFQ-based studies in Europe are the EPIC study where country-specific instruments (mostly FFQs) have been used (2), the Netherlands Cohort Study (42), and the UK Women's Cohort Study (43). Although FFQs have mainly been used in Western populations, FFQs have also been developed for Asian (44) and African (26, 45) populations.

2.4. Exposure 2: Melanoma risk factors

“Melanoma risk factors” is here used as a collective term for UV exposures and host factors (mainly pigmentation and sun sensitivity characteristics), although these variables also may be risk factors for other diseases.

Cutaneous malignant melanoma, or melanoma, is the most aggressive form of skin cancer and involves the cells (melanocytes) that produce melanin, the pigment responsible for skin and hair color. The highest incidences occur among light-skinned populations in Australia, New Zealand, North America, and northern Europe (46). The estimated incidence rates adjusted to the world standard population for the region Australia/New Zealand is about 38/100,000 in men and 29/100,000 in women (46). Despite high latitudes, the Nordic countries have among the highest incidence rates in Europe. Norway has the second highest incidence among women (16/100,000) after Iceland (19/100,000) (46), and age-adjusted incidence rates have increased more than sevenfold since the registration started in 1953-1957 (47).

Sun exposure is the major established risk factor of melanoma (48). However, geographical variations in incidence cannot be attributed to differences in solar intensities alone, as indicated by the elevated incidence in the Nordic countries. Pigmentary traits are also known to influence the association between sun exposure and melanoma risk. People with fair skin, blonde or red hair, blue eyes, and who sunburn easily or tan poorly are at higher risk. In addition to serving as markers of increased risk, nevi are direct precursors of melanoma in some fraction of cases (48).

Sun exposed sites such as the face and ears are commonly affected, but also intermittently exposed sites such as the trunk and proximal limbs (48). An intermittent pattern of sun exposure is typically assessed by measures of sun-intensive activities, such as outdoor recreational activities and vacations, or can be estimated from the number of sunburns. Animal studies and epidemiologic studies have indicated that sun exposure in early life has particularly adverse effects, but the evidence is more consistent for ecologic studies than for case-control studies (49). Artificial UV radiation (i.e. from sunbeds and sunlamps) is also associated with increased risk (50, 51). The current evidence of the effect of sunscreens on melanoma risk is inconsistent (52-54).

In epidemiologic studies, sun exposure in individuals has been measured in a variety of ways, ranging from dosimetry to personal recall of past exposure (55). Because dosimetry methods are prospective, they cannot be used in case-control studies and may be impractical in large cohort studies. To estimate past sun exposure, epidemiologists have attempted two main ways; to use place of residence as a proxy for solar dose (5) as the ambient solar radiation increases with proximity to the equator, and personal recall of exposures, which has been widely used in case-control studies from which most of our understanding of melanoma risk factors derives (56-58). A nested case-control study has been conducted within the Nurses' Health Study (5). The small number of cohort studies includes the Women's Lifestyle and Health Cohort Study from Norway and Sweden (50), and a combined analysis of the Nurses' Health Study and the Health Professionals Follow-up Study (1).

2.5. Studied aspects of information bias

2.5.1. Reproducibility of dietary intake and melanoma risk factors

Poor reproducibility can be a source of information bias in both cohort and case-control studies. The terms reproducibility, reliability (sometimes intra-method reliability), and repeatability describe to what extent repeated measurements yield the same results. The terms are used somewhat differently in different disciplines, but here reproducibility refers to the consistency of questionnaire measurements on more than one administration to the same persons at different times, realizing that conditions are never identical on repeated administrations (59).

Repeated measurements within subjects made at two or more points in time (test-retest) can provide a useful first approximation of the questionnaire performance in terms of random within-person error (Figure 1). However, the time interval between questionnaire administrations is of importance. For short intervals, subjects may remember or copy their previous responses. For longer intervals, true variations in exposure, as well as errors in the measurement of exposure, contribute to reduced reproducibility. The time interval between administrations of the NOWAC questionnaire (Papers I-III) was approximately 3 months.

The reproducibility of FFQs has been examined under a wide variety of conditions with correlations generally ranging from 0.4-0.7 for energy adjusted nutrient intakes (60). Few studies have attempted to correct disease risk estimates based on FFQ reproducibility data. However, diet-cancer associations have been corrected based on the reproducibility of family 7-day household food inventories in a cohort from the 1930s (61). The corrections only had minor effects. Other studies have compared odds ratio (OR) estimates based on test and retest data without performing corrections, and have reported fluctuations in the estimates (62, 63).

Reproducibility studies of melanoma risk factors are fewer than for diet. An overview of ten previous studies that were relevant for Paper III is presented in the paper. The kappa coefficient, (simple or weighted) typically ranged from 0.4-0.8. In studies where reproducibility was assessed

separately for cases and controls, the median value and range for kappa were similar (Paper III). Two of the studies have corrected OR estimates from case-control studies based on the reproducibility data (64, 65).

2.5.2. Missing values in dietary intake

In self-administered questionnaires, respondents often omit some of the questions, which create missing values. This form of missing has been termed item nonresponse, which means that partial data are available for the subjects (15). Data from a self-administered FFQ will typically have missing values, which present a critical problem in the subsequent calculation of food and nutrient intake. This was studied in Paper II. However, missing values in FFQs can be viewed as only one example of a more general problem of missing values in aggregated exposure data, another example being multi-question depression scales (66). Dietary intake calculations may also be affected by missing values in the food composition database (67, 68), but only missing in FFQ responses have been considered in the present work.

Nonresponse to food frequencies or portion sizes will generate missing values for food weights (typically grams per day) and missing values in aggregated variables for the intake of food groups, nutrients, and energy. Excluding all subjects with missing values may lead to unacceptable loss of statistical power, whereas just adding the nonmissing items may lead to underestimation and biased results. Imputation is practical because it creates a complete data set at the outset, which can be used as input for dietary intake calculation programs. However, missing values are often treated based on a crude assumption that missing imply no consumption and therefore can be imputed by the null value (69-72). Resurveys or reinterviews of study participants with missing values (28, 44, 73-75) have shown that the “true” proportion of null intake may vary from 0-96% with an average of about 50%, and that dietary intake is higher for the completed data.

The contribution of imputation errors to measurement errors in dietary intake is little studied. The effect of imputation will depend on the magnitude of missing values in the data and the imputation method used. This information is rarely provided in studies based on FFQ data, and is generally difficult to collect as dietary intake is often calculated with questionnaire- or study specific programs that are not commercially available.

More refined statistical procedures for handling missing data are available (16), although there are only recent examples of more advanced methods being applied to (25) or evaluated for FFQ data (76, 77).

2.5.3. Recall bias in melanoma risk factors

Although most case-control studies have a potential for recall bias, the problem may be larger for risk factors that are well known (78). Recall bias in relation to melanoma has only been

investigated in a handful of studies and for a limited number of risk factors (5, 79-81). Some of these studies have assessed the reproducibility of melanoma risk factors separately for cases and controls, but to estimate recall bias the first measurement should ideally precede the development of melanoma (82). In the present study of recall bias (Paper IV), this is achieved by conducting a nested case-control study within NOWAC comparing exposure information collected at enrollment and after disease.

Only two previous studies were found that have compared exposure data from the same individuals before and after a melanoma diagnosis, both were nested case-control studies within the Nurses' Health Study cohort (5, 79). The first study found recall bias in the ability to tan, but not in hair color (79). The second study found no substantial recall bias in the tendency to tan, or in hair color (5). For tendency to burn, recall bias was observed for squamous and basal cell carcinoma, but not for melanoma (5).

Alternative approaches used to study recall bias in melanoma risk factors include comparison of cases with a disease-free co-twin (80), and comparison of self-reported confidence ratings for cases and controls (81). The study based on twin data found indications of recall bias in sunbathing in childhood and adulthood, mole frequency, and freckling in childhood, but ease of burning and tanning appeared unbiased (80). The study using confidence ratings to indirectly measure recall bias in time spent outdoors, found similar ratings for cases and controls (81).

Recall bias represents differential measurement error, and there are few examples of statistical corrections for recall bias in the literature. Some studies have compared disease risk estimates based on the retrospective and prospective exposure measurements (5, 79).

3 Materials and methods

3.1. The Norwegian Women and Cancer Study (NOWAC)

The present work is based on data from the NOWAC study, a national population-based cohort established in 1991. NOWAC was primarily designed to study associations between internal and external hormones and female cancers with a focus on breast cancer risk (14), but the cohort has the potential for studying a wide range of exposures in relation to the risk of other cancers and diseases, as well as mortality.

A non-exhaustive list of investigated relationships in NOWAC include the risk of breast cancer and other hormone-dependent cancers in relation to oral contraceptive use and hormone replacement therapy (83-86); cancer risk and dietary intake with focus on milk consumption (24), farmed salmon (87), lean fish (88), and persistent organic pollutants from fish liver (89); vitamin D status in relation to dietary intake and UV exposure (90); diet among breast cancer survivors and healthy women (91); and socioeconomic variation in cancer risk (92). NOWAC is part of the Norwegian-Swedish Women's Lifestyle and Health Cohort Study where results have been published on breast cancer risk and oral contraceptive use (93); melanoma risk in relation to UV exposure and pigmentation factors (50); and mortality and BMI (94). NOWAC is also part of the European Prospective Investigation into Cancer and Nutrition (EPIC) (2, 95).

When establishing NOWAC, the intention was to build a cohort representative of the Norwegian female population in the selected age groups, in order to estimate population attributable risks as well as relative risks, and to make inferences about public health effects. Thus, NOWAC was implemented by random sampling of women from the national population register. From 1991-1997 a total of 179,388 women aged 30-70 years were invited to participate in NOWAC, of whom 102,443 were enrolled with a crude response proportion of 57.1% (96). Due to resource limitations and methodological sub-studies, the enrolment procedure consisted of 24 series of questionnaire dispatches. The series can be grouped into four major sub-cohorts according to year of enrolment, age group, and the different hypothesis to be tested, which have been described in the first overview article of NOWAC (96). Some numbers have been slightly revised in a more recent publication (14).

In 1998-2002 the cohort members were invited to fill in an exposure update questionnaire, of whom 80,693 responded (81% corrected for death and emigration) (14). Among these respondents 37,226 women constitute the Norwegian part of the EPIC study. In 2003 the second round of exposure update commenced for those enrolled in 1991-1995. From 2003-2006 the size of the cohort was increased by inviting another 130,577 women born in 1943-57. The scope was also expanded by establishing a "post-genome cohort" with collection of both normal and malignant peripheral blood and breast tissue from some women for whole-genome expression profiling.

The NOWAC study has been approved by the Regional Ethics Committee for Medical Research, Northern Norway, including the collection and storage of questionnaire information and biological samples. All data are stored and handled according to permissions issued by the national Data Inspectorate. Updated information about NOWAC can be found on the web-site <http://uit.no/kk/NOWAC/>, where current and previous sources of funding are also listed.

3.1.1. Sampling procedures

The sampling procedures in NOWAC have a common design (96). Women to be invited are sampled from the national population register. The register has information on all residents in Norway, including persons with refugee status, and temporary work permissions. Residents are identified by a unique 11-digit national person number, incorporating birth date and gender (97). Information about changes in name, address, and vital status (alive, dead, or emigrated) are continuously updated based on mandatory registration and notification to the registry. The sampling is carried out at Statistics Norway, Division of Sample Surveys, using a drawing register from which persons are excluded based on vital status or certain addresses that prevent contact (e.g. institutions, Foreign Service, military, confidential- or unknown addresses). To retain confidentiality the person number is replaced by a serial number on the letters of invitation and questionnaires dispatched from Statistics Norway, and in the data files.

3.1.2. Letter of introduction and questionnaires

Invited women receive a common letter of introduction, a photo booklet, and a health- and lifestyle questionnaire. Examples of printed material are included in Appendices A-D. The letter of introduction informs about the purpose of the NOWAC research project, the right to withdraw from the study at any time, and the authorizations obtained from the Regional Ethics Committee and Data Inspectorate. For exposure updates, the letter also explains why the women have been contacted again. The photo booklet has photographs of most brands of oral contraceptives or hormone replacement therapies sold in Norway. On all questionnaires there is a request for written informed consent to participate in the study. The return envelope is addressed to the Institute of Community Medicine, University of Tromsø, with prepaid postage. One or two reminders are sent to improve response rates.

The NOWAC questionnaires have a common core of questions that mainly cover reproductive events, use of exogenous hormones, screening for breast cancer, breast cancer in the family, self-reported diseases, smoking, height, weight, physical activity level, and social status. Most questionnaires also include questions about melanoma risk factors. The main questionnaire in 1991/92 was four pages long with a limited FFQ section, but in 1996 the length was increased to eight pages by incorporating a four-page FFQ section.

3.1.3. Linkages and follow-up information on cancer, emigration, and death

The 11-digit person number is used by all official registries in Norway, and enables linkages with data from the national population register and register of death certificates (Statistics Norway), the Cancer Registry of Norway, as well as other registers, e.g. the fertility register and the register of education, which have been used to assess the external validity of NOWAC (96). Register linkages ensure almost complete follow-up of cancer, emigration, and death in NOWAC.

The information on cancer from the Cancer Registry of Norway has been estimated to be almost complete for solid tumors (98). More recent investigations of some specific cancer sites have found completeness to range from >99 % (head and neck cancers, prostate cancer) to about 95% (ovarian cancers) (99).

3.1.4. Previous methodological sub-studies

Different methodological studies have been undertaken within NOWAC to assess external and internal validity (14, 96, 100). The response rates have been found to depend on age at recruitment (decreasing with age), geographical residence (highest in Northern Norway), length of questionnaire (higher for shorter questionnaires), and study title (higher for “Women and Cancer” than “Women, lifestyle, and health”) (100). In a study of response rate according to questionnaire length in 1996 (96), a 58% response rate was attained for a four-page questionnaire, compared to 51% for an eight-page questionnaire. Based on a trade-off, most women have later been mailed an eight-page questionnaire, including the four-page FFQ section.

The distribution of breast cancer risk factors has not been found to vary with response rates (100), which implies relatively high external validity. The external validity of the NOWAC cohort has also been investigated with regard to breast cancer incidence and demographic factors by register linkages. A comparison between the observed cumulative incidence of total cancer and breast cancer in NOWAC versus expected national rates from the Cancer Registry of Norway for 2004, shows no marked differences (14, 96). Compared to those who were invited to NOWAC, the respondents were younger, fewer were nulliparous or uniparous, more were slightly older at first birth, and more had over 12 years of education (96). A study of the possible selection of participants from the first to the second mailing showed that women responding a second time were slightly younger and more educated, but with small differences (14).

The validity of data from the four-page FFQ section has been assessed in two studies (12, 13). In the first study the reported intake of marine foods and cod liver oil supplements was compared to a biomarker (12). The study indicated that for populations with a high intake of marine foods, the reported intake can be reflected in the fatty acid composition of serum phospholipids, but there is a need to record the intake of lean and fatty fish separately due to the variable fat content.

In the second study, the dietary intake calculated from the FFQ was validated against four, repeated 24-hour dietary recalls collected during one year (13). Intakes of energy, fat, added sugar, and alcohol were lower in the FFQ than in the 24-hour recalls, whereas intake of fiber was higher. The median calibration coefficient, calculated by regression of the 24-hour recall data on the FFQ data, was 0.57 for foods and 0.38 for nutrients. It was concluded that the FFQ's ability to rank subjects was good for foods eaten frequently, but that the results underline the necessity of measurement error corrections.

3.1.5. Present methodological sub-studies

The present work is based on two data sets, referred to as the “test-retest” and “recall bias” data sets, for which separate data collections were planned and undertaken within the authorizations obtained for the NOWAC study. Both data collections included two repeated measurements on the same subjects with the same questionnaire instrument, but with a difference in questionnaire versions and time intervals. The test-retest study was based on repeats of an exposure-update questionnaire (first round after enrolment), whereas the recall bias study was based on repeats of questions from an enrolment questionnaire. The time between questionnaire administrations was relatively short in the test-retest study (approximately 3 months) compared to the recall bias study (from 6-13 years). The test-retest data set was used to study the short-term reproducibility of FFQ data (Paper I) and melanoma risk factors (Paper III), and missing values in FFQ data (Paper II). The recall bias data set was used to study longer term reproducibility and recall bias in melanoma risk factors (Paper IV).

3.2. Test-retest study

The test-retest data were collected in 2002 as part of the first exposure update for approximately 36,000 women included in NOWAC in 1996/97. A total of 28,510 (79%) women returned the questionnaire. This was an eight-page health and lifestyle questionnaire with a FFQ section (four pages), and a section on melanoma risk factors (one page) to update UV exposures for the time interval 1997-2001 and to record some additional risk factors not included at enrolment. A random sample of 2,000 women was drawn from the 14,817 women who returned the questionnaire (test) within four weeks. Among the 2,000 women, five did not consent to further contact and were excluded, leaving 1,995 women who received the same questionnaire (retest) once more. The retest questionnaire was returned by 1,496 of the 1,995 women (75%). The sampling procedure is illustrated in Figure 2.

Figure 2 Illustration of sampling procedure in test-retest study

Year	Stage	Cohort sample, description	<i>n</i>	Test-retest sample
1996-97	Enrolment	Contacted (birth year 1927-57)	68,388	
			↓	
		Respondents	37,917	
			↓	
2002	Exposure update	Contacted (February 26- March 12)	35,906	
			↓	
		Respondents	28,510	↓
	Test	Responded by April 4 (after Easter)	→	14,817
				↓
	Retest	Random sample		2,000
				↓
		Informed consent to further contact		1,995
				↓
		Respondents		1,496

3.2.1. Sampling procedure

In 1996/97 the number of women invited to participate in NOWAC was 68,388, of whom 37,917 (55%) responded (96). At the exposure update in 2002 there were 35,906 eligible women who could be contacted after linkage with the national population register, of whom 28,510 responded (79%). The women were divided in two groups according to birth year; those born in 1927-1942 and 1943-57, as women in the oldest age group would not be asked follow-up questions about oral contraceptive use.

The exposure update questionnaires (test) were dispatched from Statistics Norway between February 26 and March 12 in 2002. The questionnaires that were received at the Institute of Community Medicine, University of Tromsø, within April 4 ($n = 14,817$), i.e. shortly after the Easter holidays, were taken as the sampling frame for the retest study. The id-numbers of the 14,817 early respondents were sent back to Statistics Norway, where a sample of 2,000 women was drawn at random for the retest. The retest questionnaire was dispatched on May 23 to women of both age groups with one reminder mailed on June 21.

For practical reasons at Statistics Norway, the test questionnaire was dispatched to the youngest age group first, and within April 4 a higher proportion of questionnaires had been received from this age group. Therefore, the sampling frame for the retest sample was overrepresented (57%) by younger

women (i.e. born in 1943-57) compared to the proportion among the respondents to the test questionnaire (48%). Table 1 shows the number of women contacted and the number of respondent within each age group in the test and retest.

Table 1 Age distribution in the test-retest study according to steps of the sampling procedure

Birth year	Test (exposure update in 2002)			Retest (after approximately 3 months)		
	Age (years)	Contacted <i>n</i> =35,906	Responded <i>n</i> =28,510	Sampl. frame <i>n</i> =14,817	Sample <i>n</i> =1,995	Responded <i>n</i> =1,496
1943-1957	46-59	16,554 (46%)	13,577 (48%)	8,384 (57%)	1,118 (56%)	832 (56%)
1927-1942	60-75	19,352 (54%)	14,933 (52%)	6,433 (43%)	877 (44%)	664 (44%)

3.2.2. Study sample and respondents

Papers I-III were all based on the same study sample of 1,995 women and 1,496 respondents. However, one respondent had temporarily unavailable test data as the questionnaire was left behind during optical reading. Therefore, the study sample in Paper I was 1,994 and the number of respondents with both test and retest data was 1,495. In Paper III, the study sample was also 1,994, but 14 women with a melanoma diagnosis (before 31 December 2001) were initially excluded, leaving 1,980. The response proportion was presented as 1,484/1,981 (75%), counting the missing test questionnaire. In Paper II, data were available for all 1,496 respondents. Additional subject exclusions were done in each paper. The main purpose of the exclusions was to estimate reproducibility and the effects of missing value imputation in a sample likely to be included in a prospective epidemiologic analysis, although exclusion criteria vary largely between studies. An overview of the different test-retest samples and subject exclusions in Papers I-III is given in Table 3.

Table 2 Overview of test-retest data set: samples and subject exclusions in Papers I-III

	Paper I	Paper II	Paper III
Variables studied	Dietary intake	Dietary intake	Melanoma risk factors
Study sample, <i>n</i>	1,994* (1,995)	1,995	1,980* (1,981) [†]
Respondents, <i>n</i>	1,495* (1,496)	1,496	1,483* (1,484) [†]
Initial exclusions, <i>n</i>	7 (null energy intake in test or retest)	None	9 (no answers to risk factors in test or retest)
Base for statistical analysis (<i>n</i>)	1,488	1,496	1,474
Further exclusions	Missing frequencies $\geq 50\%$; energy (kJ) $< 2,500$ or $> 15,000$; (test or retest)	Missing values $\geq 50\%$ (test only)	None
Main analysis, <i>n</i>	1,370	1,430	1,474

*One test questionnaire temporarily missing, [†]14 women with a melanoma diagnosis excluded

In Paper I (reproducibility of FFQ data) seven women with null energy intake in either test or retest were excluded before the statistical analysis. Thus, 1,488 respondents with two FFQ measurements were available for the reproducibility analysis. The analysis of food groups and nutrients included 1,370 women who had answered at least 50% of the frequency questions in the FFQ and had energy intake in the range 2,500–15,000 kJ in both test and retest. Similar inclusion criteria have previously been used in NOWAC (101). The effect of exposure measurement error on disease risk was investigated using the 1,370 subjects from the food group and nutrient analysis, who also had completed a question about high blood pressure. Those who answered “yes” or “no” to this question in both test and retest ($n = 1,013$), were defined as cases ($n = 301$) and controls ($n = 712$), respectively. Subjects with inconsistent or missing answers were excluded.

In Paper II (missing values in FFQ data), the imputation methods were compared for 1,430 of the 1,496 (96%) women who had less than 50% missing values in the test FFQ. Unlike Paper I, the exclusion was only based on the test data, as only the test FFQ was imputed. Energy intake was not used to exclude subjects before imputation, as the calculation of energy intake required some form of imputation (null value in Paper I).

There were also some differences between Papers I and II with regard to the exclusion criterion of $\geq 50\%$ missing. In Paper I the proportion of missing values was only based on frequency questions. For Paper II a more elaborate algorithm was developed to determine the proportion of missing in all questions (frequencies, portion sizes, types of fat on bread, seasonality of fish consumption, and yes/no questions about user status, e.g. “Are you a teetotaler”) due to the subsequent imputation. Further, as part of the algorithm, some missing values were not counted as missing, e.g. missing portion sizes for consumption frequencies that were “never/rarely”. However, a sensitivity-specificity

analysis shows that if the subjects in Paper I ($n = 1,495$) had been included/excluded according to the definition of missing values in Paper II (or vice versa), less than 1% of the total sample would have been classified differently (Table 4).

Table 3 Hypothetical subject exclusion according to missing value definitions in Papers I and II

PROPORTION OF MISSING VALUES			
PAPER I	PAPER II		Total
Frequency Percent	< 50 %	≥ 50 %	
< 50 %	1424	9	1433
	95.25	0.60	95.85
≥ 50 %	5	57	62
	0.33	3.81	4.15
Total	1429	66	1495
	95.59	4.41	100.00

In Paper III (reproducibility of melanoma risk factors) nine women who did not fill in any of the test or retest questions regarding melanoma risk factors, were excluded. None of the women were diagnosed with melanoma during the test–retest study period in 2002. Thus, 1,474 respondents without melanoma and with two questionnaire measurements were included in the reproducibility analyses.

3.2.3. Sample size calculation and power considerations

The test-retest study was planned with a sample size of 2,000. The reproducibility of FFQ data has typically varied from 0.5-0.7 under a wide variety of conditions (59). If the observed Pearson's correlation coefficient is 0.60, the statistical power to detect a value below 0.55 or above 0.65, is at least 90%. A random sample of 2,000 was assumed to give sufficient power to also study melanoma risk factors.

3.2.4. Letter of introduction and questionnaires

The original printed material (letter of introduction, questionnaire, and postcard reminder) for the exposure update in 2002 (test), can be viewed in Appendix A. The letter of introduction and postcard reminder was similar for both age groups. The questionnaire without oral contraceptives has been included. Two reminders were sent; the first was a postcard reminder. The second reminder was mailed later than usual, and therefore the letter of introduction and questionnaire were sent once more.

The original printed material for the retest can be viewed in Appendix B. All women received the same material. The letter of introduction briefly explained that the purpose of the study was to assess how responses change with time and season. However, several calls to the Institute of Community Medicine indicated that the purpose of completing the same questionnaire twice within a short time interval was not clear. Therefore, the text on the postcard reminder was changed from the common reminder card to explain the study purpose more clearly. No second reminder was sent.

3.2.5. FFQ section

The four-page FFQ section is designed to assess average consumption over the past year, with emphasis on fish consumption and traditional food items in the study population. The same reference period (intake past years) is used at enrolment and at exposure updates. Small variations exist between different versions of the FFQ, but the original test-retest FFQ can be viewed within the questionnaire included for the test study (Appendix A) or retest study (Appendix B).

Questions were asked about the intake of milk, coffee, orange juice, soft drinks, yoghurt, breakfast cereal, bread, fat on bread and in cooking, toppings for open sandwiches (jam, cheeses, meat and fish products), fruit, vegetables, potatoes, rice, pasta, rice porridge, fish and fish products, shellfish, condiments and sauces for fish, meat and poultry, eggs, ice cream, cakes, desserts, chocolate, salty snacks, alcoholic beverages, and dietary supplements.

In all FFQ versions, similar food items are grouped together in blocks with question headings. The response options are predefined and listed in increasing order with check-boxes to facilitate completion and optical reading. For example, the items listed under the question “How often do you eat fruit?” are “apples/pears”, “oranges”, “bananas”, and “other fruit” with the following options: “never/rarely”, “1-3 per month”, “1 per week”, “2-4 per week”, “5-6 per week”, “1 per day”, and “2+ per day”. The first alternative for consumption frequencies is always “never/rarely”, but the number of options range from 4 to 7 with alternatives adjusted to the foods in question.

To estimate portion sizes, the questions are phrased in terms of natural units when convenient, such as glasses (milk, fruit juice, soft drinks, and wine), cups (coffee), slices (bread), or number (eggs and potatoes). Separate questions about the usual amounts consumed are included for fat on bread, vegetables, fish and fish products, sauces and condiments for fish, meat and meat products, ice cream, chocolate, and cod liver oil supplements. The number of response options range from 3 to 5 with units in pieces, slices, deciliters, florets (broccoli and cauliflower), or spoonfuls.

For fat on bread the response option “Do not use fat on bread” is listed before types (maximum 7) can be specified. Each type has a check box, which should be marked to confirm “yes”. Questions about alcoholic beverages and cod liver oil supplements may be skipped by non-consumers, which is determined by introductory yes/no question; typically “Are you a teetotaler?” or “Do you take cod liver oil supplements?”

The computation of dietary intake was performed with a calculation program developed at the Institute of Community Medicine, University of Tromsø, for SAS software.

3.2.6. Computation of dietary intake from FFQ

Dietary intake was calculated in Papers I and II from a total of 132 questions in the FFQ (consumption frequencies = 91, types of fat used on bread = 7, amounts = 28, and time of year for the consumption of different species of fish = 6). Broader categories of foods (e.g. “apples/pears”) were split into single foods according to frequency weights (e.g. 80% apples and 20% pears) derived from 1,798 single 24-hour dietary recall interviews conducted in a random sample of NOWAC women (102). For season specific frequencies (ice cream, fish, and cod liver oil supplements) the average for the whole year was used. Standard portion sizes and standard weights were taken from official tables for Norway (103). The calculation program was run with an updated electronic file version of the food composition table for Norway (104). The type of fat used on bread was taken into account in the calculations, but not fat in cooking since the intake of fried and cooked foods was computed using values for prepared foods in the food composition table whenever possible. Cod liver oil (liquid and capsules), which is commonly used in Norway as a source of vitamin A, vitamin D, and ω -3 fatty acids, was the only dietary supplement included.

The calculation of food groups was based on the classification system in the EPIC-SOFT program for conducting 24-hour dietary recalls in the EPIC study (105), but with some modifications. Peanuts and potato chips were added to the EPIC group “Sugar and confectionary” and called “Sweets and salty snacks”. The EPIC groups “Potatoes and other tubers” and “Egg and egg products” only included one item each from the FFQ and were therefore called “Potatoes” and “Eggs”. A new group was made for cod liver oil. The food groups included whole food items, not ingredients, as recipes were not used in the calculations.

In Paper I the missing frequencies were treated as null intake, and missing portion sizes were substituted by the smallest portion for a conservative intake estimate. In Paper II this approach was compared to other methods for handling missing values. The missing values were here imputed before the nutrient calculations, which were performed using the same program as for Paper I.

To accommodate changes in the test-retest FFQ from earlier FFQ versions, the calculation program was modified. The modifications have been described in Norwegian in an internal NOWAC document, which has been included in Appendix E. Examples of modifications are the addition of reindeer meat as a new food item, and lower frequency categories for ice cream. In addition, some modifications were done to the code for handling inconsistent responses.

A translated overview of all food groups and food group items was made available as “additional material” in the electronic journal where Paper I was published. The printed overview has been included with Paper I.

3.2.7. Melanoma risk factor section

All melanoma risk factors in the reproducibility study are listed in Table 2. UV exposures were updated for the 5-year period after enrolment and included sunburn, sunbathing vacations, and solarium use in 1997-2001. In the question about sunbathing vacations (Table 2), “southern latitudes” imply various destinations, but typically southern Europe (e.g. Spain or Greece). Solarium is generally understood as a tanning bed. Some host factors and additional risk factors not included at enrolment were also recorded. The host factors included freckling, nevi on the arms, and skin color. Additional risk factors were the following: use of sunscreen on different occasions; use of sun protection factor (SPF) on different occasions (both today and ten years ago); and brands of sun screen with corresponding SPF. The melanoma risk factor section can be viewed within the questionnaire included for the test study (Appendix A) or retest study (Appendix B).

Table 4 Overview of melanoma risk factors in the test-retest study

Question	Precoded response options	Variable
Host factors		
“Do you get freckles when sunbathing?”	Yes/no	Freckling
“How many small, regular moles do you have in total on both arms (from fingers to armpits)?”	0, 1-10, 11-50, 50+	Symmetric nevi, arms
“In order to study the effect of sunbathing on skin cancer risk, we ask you to provide information about skin color”	Scale for untanned skin color graded 1-10	Skin color
Ultraviolet exposures 1997-2001		
“How many times per year have you been burned by the sun resulting in pain or blisters with subsequent peeling?”	Never, ≤ 1 , 2-3, 4-5, ≥ 6	Sunburn
“How many weeks per year have you sunbathed at southern latitudes?”	Never, 1, 2-3, 4-5*, ≥ 7	Sunbathing
“How many weeks per year have you sunbathed in Norway or outside southern latitudes?”	Never, 1, 2-3, 4-5*, ≥ 7	Sunbathing
“How often have you tanned yourself in a solarium?”	Never, rarely, 1/month, 2/month, 3-4/month, $>1/\text{week}$	Solarium
Sunscreen use and sun protection factor		
“When do you use sunscreen?”	One check box for each occasion: at Easter, in Norway or outside southern latitudes, on sunbathing vacations to southern latitudes, never	Sunscreen use
“What sun protection factor do you use at these times?” (Separate answers for today and 10 years ago)	Open responses for each occasion: at Easter, in Norway or outside southern latitudes, on sunbathing vacations to southern latitudes	Sun protection factor (SPF)
“Which brands of sunscreen do you use? Indicate factor if you remember”	One check box for each brand and open response for the corresponding SPF: 8 listed brands and “other”	Sunscreen brands

*Misprint in retrospective questionnaire: 4th response category should have been ‘4-6’ and not ‘4-5’.

3.3. Recall bias study

The recall bias study was designed as a case-control study nested within the NOWAC cohort and conducted in 2004. The purpose was to estimate recall bias in melanoma risk factors in a setting similar to a case-control study by taking advantage of additional information available for the cohort. Answers to questions on melanoma risk factors collected at enrolment in 1991/92 (age range 34-49 years) or 1996/97 (age range 33-69 years) were compared to the answers in a second questionnaire administered in April 2004 after some women had developed melanoma during 6-13 years of follow-up. The second data collection was conducted as a regular update of exposure information with a full-length NOWAC questionnaire (8 pages), including one page on melanoma risk factors. The questionnaire was mailed to all 208 cases that were eligible and could be contacted. Based on power calculations (described in section 3.3.3) 2,080 controls (case:control = 1:10) were selected randomly from the non-cases after matching on birth year and cohort series. The response proportion for the nested case-control study was 77% (1,759 of 2,288) overall, 78% (163 of 208) for cases, and 77% (1,596 of 2,080) for controls. The sampling procedure is illustrated in Figure 3.

Figure 3 Illustration of sampling procedure in recall bias study

<i>n</i>	Excluded	Cohort (enrolled 1991-97)	Case-control study (2004)		
102,433		Total cohort (birth year 1927-57)	Selected	Respondents	Sample
↓	→	2,704 No baseline data on melanoma			
↓	→	2,138 Death			
↓	→	689 Emigration			
↓	→	6 Unknown vital status			
↓	→	21 Withdrawal			
↓	→	499 Other methodological studies			
↓	→	470 Melanoma diagnosis			
↓	→	6,029 Lack of informed consent to further contact			
↓					
89,877		Available after 12% exclusion			
↓	→	→ All available cases of melanoma	→	208	163 (78%) 162*
89,669		All available non-cases			
↓	→	→ 10 controls selected per case after matching on age and series	→	2,080	1,596 (77%) 1,242*
87,589					

*1 case excluded (reclassification of diagnosis), and 354 controls excluded (8 matched to the excluded case, 337 matched to non-responding cases, 7 without questionnaire answers to melanoma risk factors, and 2 diagnosed with melanoma after the return date of the retrospective questionnaire, but within the same year.

3.3.1. Sampling procedure

The base population for the nested case-control study was the 102,433 women enrolled in NOWAC from 1991-1997. Initially, 12% ($n = 12,556$) of the cohort was excluded for the following reasons: inclusion in series without baseline data on melanoma risk factors ($n = 2,704$), death ($n = 2,138$), emigration ($n = 689$), unknown vital status ($n = 6$), withdrawal from the study ($n = 21$), participation in other methodological sub-studies ($n = 499$), melanoma diagnosed before enrolment ($n = 470$), or lack of informed consent to further contact ($n = 6,029$). Among the 89,877 women available for the present study, there were 208 women diagnosed with primary melanoma after enrolment (incident cases) and 89,669 non-cases. The controls were drawn at random from the non-cases after

matching on birth year and cohort series. The purpose of the age matching was to attain a similar age distribution between cases and controls, as cases tend to be older. The study was designed with frequency matching of ten controls per case on five year age intervals, but in the data set that was received, cases and controls were individually matched. As the women had been enrolled at two time points (1991/92 and 1996/97), they were also matched on cohort series as a proxy for time of enrolment and questionnaire version. The printed material was dispatched from the Institute of Community Medicine, University of Tromsø, on April 13 2004, with two reminders; the first was a postcard reminder and for the second reminder the invitation letter and questionnaire were mailed again.

3.3.2. Study sample and respondents

Due to a lag in the cancer registration process at the Cancer Registry, the cohort data were linked with follow-up information through December 31 2004 to verify the case-control status before the analysis. At the last linkage, one case had been reclassified as not having melanoma, and was therefore excluded. Seventeen cases diagnosed with melanoma within the first year of follow-up were not excluded.

Altogether 354 controls were excluded: eight matched to the excluded case, 337 matched to non-responding cases, seven without answers to the questions on melanoma risk factors in the prospective or retrospective questionnaire, and two diagnosed with melanoma after the return date of the retrospective questionnaire, but within the same year. No cases were excluded due to the omission of all questions on melanoma risk factors. Thus, the final study sample included 162 cases and 1,242 controls. Each case had a minimum of four matched controls. For history of sunburn, sunbathing vacations, and solarium use, analysis of the interval 30-39 years was restricted to subjects ≥ 39 years at enrolment. Since the age interval 40-49 years was only included for those enrolled in 1991/92, but few subjects had attained 49 years at enrolment, the analysis was restricted to subjects ≥ 40 years.

3.3.3. Sample size calculation and power considerations

When designing the nested case-control study in spring 2004, the follow-up information on cancer was complete through 2001, and the number of melanoma cases in the NOWAC cohort was estimated to be 211 by December 31 2002. The sample size calculation was based on 166 cases corrected for expected death/emigration and 83% response (based on previous exposure update questionnaires). The exposure distribution and relative risk (RR) estimates used in the calculations were from the analysis of the Norwegian-Swedish Women's Lifestyle and Health Cohort Study with about 50% NOWAC women (50). With a ratio case:control of 1:8, the power to detect a RR of 2.1 or higher was 80% for sunburn (age 10-19 years), and solarium use (age 20-29 years). Power increased

up to eight controls per case, but ten controls were selected per case to correct for an expected response of about 80%.

With a case:control ratio of 1:8 and 166 cases, the power to detect differences in misclassification between cases and controls was > 90% for a 10% difference from 10% to 20%. Power was 80% for a 10% difference from 20% to 30% (two-group χ^2 -test for a binary variable with a two-sided significance level of 5%).

3.3.4. Letter of introduction and questionnaires

This was the third mailing to many of the cohort members, and conducted as a regular update of exposure information. The original printed material (letter of introduction, questionnaire, and postcard reminder) that was sent to cases and controls in 2004 can be viewed in Appendix C. In the letter of introduction and questionnaires there was no particular emphasis on melanoma, and subjects were not made aware of their case-control status or that recall bias would be studied, as this could influence the responses. In the eight-page questionnaire, the section on melanoma risk factors was on the last page (Appendix C), as in most NOWAC questionnaires.

Exposure information before disease was assessed from the enrolment questionnaire, which has varied somewhat over the years (see section 3.1). The questionnaire to cases and controls in 2004 repeated some of the core questions about melanoma risk factors that were included in many of the enrolment questionnaires. Sample pages of the melanoma risk factor section are shown in Appendix D. Recall bias was studied in eight questions with identical wording in both questionnaires (Table 5). The host factors included eye color, hair color, skin color after acute and chronic sun exposure, and the number of asymmetric nevi >5 mm on both legs. UV exposures included history of sunburn, sunbathing vacations, and solarium use. Separate answers were given for the age intervals < 10, 10-19, 20-29, 30-39, and 40-49 years.

Table 5 Overview of melanoma risk factors in the recall bias study

Question	Precoded response options	Variable
Host factors		
“What is your eye color?”	Brown, grey/green/mix, blue	Eye color
“What is your hair color?”	Dark brown/black, brown, blond, red	Hair color
“If you sunbathe intensely in the beginning of summer, does your skin get...?”	A tan without redness, red, red with pain, red with pain and blisters	Acute sun exposure
“After repeated and prolonged sunbathing, does your skin get...?”	A deep tan, a normal tan, a light tan, no tan	Chronic sun exposure
“How many irregular moles larger than 5 mm do you have in total on both legs (from toes to groin)?”	0, 1, 2-3, 4-6, 7-12, 13-24, 25+	Asymmetric nevi, legs
Ultraviolet exposure during age intervals < 10, 10-19, 20-29, 30-39, and 40-49 years		
“How many times per year have you been burned by the sun resulting in pain or blisters with subsequent peeling?”	Never, ≤ 1 , 2-3, 4-5, ≥ 6	Sunburn
“How many weeks on average per year have you been on sunbathing vacation to southern latitudes or in Norway?”	Never, 1, 2-3, 4-5*, ≥ 7	Sunbathing vacations
“How often have you tanned yourself in a solarium?”	Never, rarely, 1/month, 2/month, 3-4/month, >1 /week	Solarium

*Misprint in retrospective questionnaire: 4th response category should have been ‘4-6’ and not ‘4-5’.

3.4. Outcome variables

The effect of measurement errors on disease outcome was investigated in Papers I and IV. Self-reported hypertension (yes/no) was used in Paper I to demonstrate the effect of correcting the association with alcohol intake by means of regression calibration. Hypertension and alcohol were chosen because the magnitude of the association seems representative of the weak diet-disease associations typically found in dietary epidemiology, and because alcohol intake is an important variable in NOWAC. The test-retest study sample was too small to use cancer as the outcome. The outcome variable in Paper IV was melanoma determined by linkage to the Cancer Registry.

3.5. Data cleaning

Optical reading of the NOWAC questionnaires was introduced in 2002, and the questionnaires for the test-retest study were among the first to be optically read (Papers I-III). Therefore, a sample of the original questionnaires was compared to the optically read data. The inspection of the frequency distribution of all optically read variables to be used in Papers I-III (FFQ variables, melanoma risk factors, and background characteristics) led to the discovery of errors in two variables; marital status in the test data, and egg consumption in the retest data. Therefore, data on marital status were only presented for the retest data (Papers II). The variable for egg consumption was entered manually and included in the computation of dietary intake. Data on height and body weight for respondents with BMI < 18 and BMI > 50 were checked against the questionnaires for the test-retest study, and some corrections were made to the data. Similar checks for frequency distributions and BMI were done to data from the recall bias study, but no apparent errors were found. Data from the enrolment questionnaires had previously been entered manually, and data from the last questionnaire were optically read years after optical reading had been initiated. Due to differences between the questionnaire versions administered at enrolment, some variables names had to be standardized.

3.6. Statistics

Table 6 gives an overview of the statistical analysis in Papers I-IV (simple descriptive measures not included). The different analyses have been grouped under categorical or continuous exposure variables, or binary outcome variables. Some of the analyses are described in greater detail below. Most single questions about dietary intake and melanoma risk factors had predefined response options and were analyzed as categorical variables. The calculated intake of food groups, energy, and nutrients represents highly aggregated data that were analyzed as continuous variables (Papers I and II). Among the melanoma risk factors, both skin color (graded color scale from 1-10) and SPF (open responses) were discrete variables with a large number of categories, and therefore analyzed as continuous variables (Papers III).

Table 6 Overview of the statistical analysis in Papers I-IV

Analysis	Paper I	Paper II	Paper III	Paper IV
Categorical exposure variables				
Two-way contingency tables, square				
Agreement, %	X		X	X
Misclassification, %	X		X	X
Symmetry of misclassification, %	X		X	X
McNemar's test for 2×2 tables			X	
Bowker's test of symmetry			X	X
Kappa coefficient, simple (κ)	X		X	
Kappa coefficient, weighted (κ_w)	X		X	X
Test for homogeneity of κ or κ_w			X	X
Root mean squared error (RMSE)		X		
KNN imputation		X		
Continuous exposure variables				
Intraclass correlation coefficient (ICC)	X		X	
Pearson's correlation coefficient (r)	X			
Spearman's correlation coefficient (r_s)	X		X	
Within-person difference	X	X	X	
One-way analysis of variance			X	
Kruskal-Wallis test			X	
Wilcoxon rank-sum test			X	
Regression calibration	X			
Binary outcome variables				
Logistic regression	X			X

3.6.1. Two-way contingency tables

Contingency tables were used in Papers I, III, and IV (Table 6). Figure 4 illustrates the parts of the contingency table that are included in the different descriptive measures for a generic variable with seven categories. Subjects with the same response in test and retest will appear in the cells along the table diagonal, which represent the agreement (A). Shifts in the misclassified responses are assessed by calculating the proportion of subjects in cells within the dark grey area (test > retest), or the light grey area (test < retest). Numbers ($\pm 1, \pm 2$) indicate the distance from the diagonal and the magnitude of the misclassification. Extreme misclassification (E) is defined as responses in the lowest test category and highest retest category, or vice versa. Misclassification is here used about discordant or

inconsistent responses when the same questions are answered repeatedly, and not with regard to an absolute reference method.

Figure 4 Illustration of agreement and misclassification symmetry in a contingency table

TEST	RETEST						
Response	1	2	3	4	5	6	7
1	A	+ 1	+ 2				E
2	- 1	A	+ 1	+ 2			
3	- 2	- 1	A	+ 1	+ 2		
4		- 2	- 1	A	+ 1	+ 2	
5			- 2	- 1	A	+ 1	
6				- 2	- 1	A	+ 1
7	E				- 2	- 1	A

Misclassification: test < retest

Misclassification: test > retest

A = Agreement (test = retest)

E = Misclassification in extreme categories

$\pm 1/\pm 2$ = Distance from diagonal

There were some differences between the measures used in Paper I and the others (III and IV). Total agreement (%) in Paper I is equivalent to P_A (%) in Papers III and IV. Misclassification in Paper I was calculated as the proportion (%) of subjects in $\pm 1, \pm 2$ categories from the table diagonal, and in extreme opposite categories. In Papers III and IV those misclassified in ± 1 category from the table diagonal were included in the measure of agreement $P_{A\pm 1}$ (%). Symmetry (%) in Paper I (test > retest or test < retest) was calculated among all subjects in the table, whereas symmetry in Papers III (test > retest) and IV (1st measurement < 2nd measurement) was calculated among the misclassified responses.

As a summary measure of agreement, we used the kappa coefficient, simple (κ) or weighted (κ_w). The weighted kappa takes into account the degree of disagreement in the form of weights, which can be calculated for ordered categorical data. Two sets of weights are commonly applied, Fleiss-Cohen (quadratic) weights and Cicchetti-Allison (linear) weights. The latter is the default option in SAS (106) and was applied in Papers I and III. For 2×2 tables, κ_w equals κ . When testing for homogeneity of kappa over different strata of other variables, i.e. age, education, and skin color (Paper III), or case-control status (Paper IV), the null hypothesis is that the stratum-level values of kappa are equal. For Bowker's test of symmetry, the null hypothesis is that the probabilities in the square table satisfy symmetry or that $p_{ij} = p_{ji}$ for all pairs of table cells. For two categories, this test of symmetry is identical to McNemar's test.

3.6.2. Intraclass correlation coefficients

To measure the strength of agreement for continuous variables (Papers I and III), two intraclass correlation coefficients (ICCs) were used in addition to Pearson's (r) and Spearman's (r_s) correlation

coefficients. The *ICCs* represent a group of coefficients rather than a single coefficient, and express proportions of variance (107). The different coefficients take different variance components into consideration.

Following the notation by Shrout and Fleiss (107)

$$ICC(1,1) = \frac{BMS - WMS}{BMS + WMS} \text{ (one-way random model, single measurement)}$$

$$ICC(3,1) = \frac{BMS - EMS}{BMS + EMS} \text{ (two-way mixed model, single measurement).}$$

The first number (here 1 or 3) refers to one of three cases of random and fixed effects models referred to in their paper. The second number (here 1 for both *ICCs*) indicates if the reliability is assessed for one single measurement, or the mean of several measurements. BMS is the between-person mean square, WMS is the within-person mean square, and EMS is the residual mean square for the respective models. *ICC(1,1)* is a measure of the absolute agreement between the measurements, whereas *ICC(3,1)* should be interpreted in terms of consistency. This is because *ICC(3,1)* treats the variance between the two measurements as a fixed effect that does not contribute to the WMS. In addition, *ICC(1,2)* was part of the regression calibration (one-way random model, mean of two measurements).

3.6.3. Regression calibration

In Paper I the OR estimates for hypertension were corrected for measurement errors in alcohol intake using regression calibration. The relationship between the true value of an exposure variable without error (X) and the observed value measured with error (W) can be expressed in terms of a measurement error model. Alcohol was assumed to be measured with random, additive error, as in the “classical measurement error model” (17). The model can be expressed as $W = X + U$, where the error U has zero expectation and constant variance, and is assumed to be independent of X . Further, it was assumed that U was nondifferential with respect to hypertension (Y).

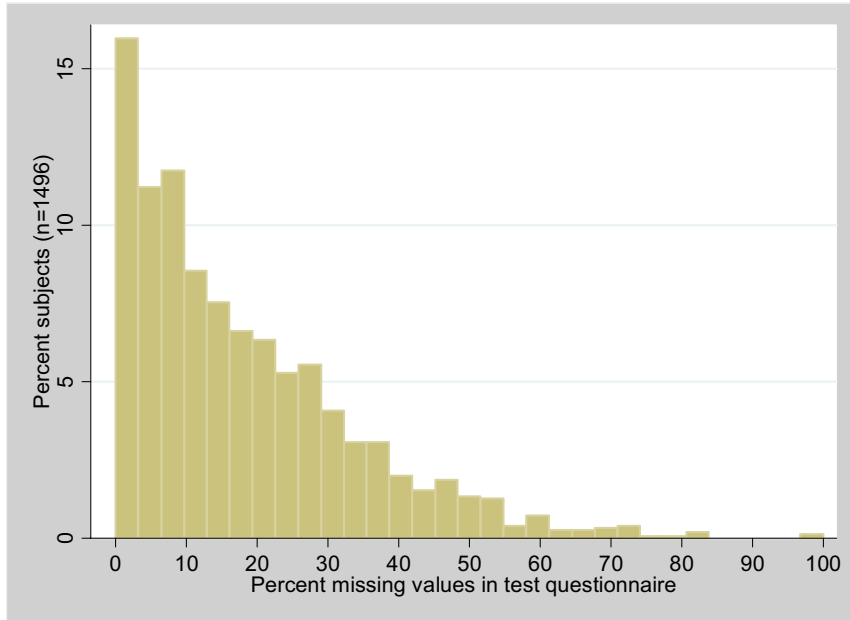
Based on a linear calibration function for replicate data, the calibrated mean alcohol intake for each subject, X_i^* , can be calculated as $X_i^* = \bar{X}_{tot} + \lambda(\bar{X}_i - \bar{X}_{tot})$, where \bar{X}_{tot} is the grand mean of all observations, \bar{X}_i is the mean of the replicate measurements for each person, and λ is the coefficient *ICC(1,2)* (107). The calibrated alcohol intake was then included in the regression analysis. Bootstrap with 1,000 repetitions was used to estimate standard errors and calculate 95% confidence intervals (CIs).

When the calibration is based on replicate data rather than a reference measure, the effect will be to estimate the association with Y corrected for random error, but any systematic error remain uncorrected.

3.6.4. Missing values and imputation methods

The proportion of missing values in the FFQ data (Paper II) showed a skewed distribution (Figure 5). Therefore the results were presented as the median value with the lower and upper quartile.

Figure 5 Distribution of missing values in the test questionnaire



Imputation with the mode and median was based on the sample mode and median values. Missing values for user status (yes/no) were imputed by the most frequent answer, i.e. to use fat on bread and drink alcohol, but not take cod liver oil supplements. Missing values in frequencies and amounts were then imputed based on reported or imputed user status (null value for nonusers, and the mode/median for users). Most users specified one type of fat on bread. Therefore, the most common type was imputed.

The imputation scheme for imputation with retest values is shown in Table 7. The consumption frequency and amount questions for a given food item were imputed as a pair, i.e. if one value was missing in the test then both values were taken from the retest. In the case where the pair of retest values (frequency and amount) was incomplete, the missing test value was imputed if the retest value was available. There were retest answers for 50% of the values missing in the test. Residual missing values in frequencies were treated as null intake and residual missing in amounts as the smallest portion size.

Table 7 Imputation scheme for missing values in food items with both frequency and portion size question using retest data

Test data		Retest data		Imputation with retest data?	
Frequency	Amount	Frequency	Amount	Frequency	Amount
Missing	Answered	Answered	Answered	Yes	Yes
Missing	Answered	Answered	Missing	Yes	No
Missing	Answered	Missing	Answered	No	No
Answered	Missing	Answered	Answered	Yes	Yes
Answered	Missing	Answered	Missing	No	No
Answered	Missing	Missing	Answered	No	Yes
Never/rarely	Missing	Answered	Answered	No	No
Missing	Missing	Answered	Answered	Yes	Yes

The underlying principle of k nearest neighbors imputation (KNN), the adaptation to FFQ data, and the implementation have been described in detail in Paper II.

3.6.5. Software

The main software program for the statistical analyses was SAS versions 8.2 and 9.1 (<http://www.sas.com/>). Additional programs were used for the following analyses: the ICCs with 95% CI were calculated in SPSS version 12.0 (<http://www.spss.com/>); the regression calibration was executed using the *rcal* command in STATA version 8.0 (<http://www.stata.com/>); and the KNN imputation was done using a modified version of the function *impute.knn* in the package *impute* for the statistical software R (<http://www.r-project.org/>).

4 Synthesis of results in Papers I-IV

Paper I

Test-retest reproducibility of a food frequency questionnaire (FFQ) and estimated effects on disease risk in the Norwegian Women and Cancer Study (NOWAC)

The objective was to investigate the test-retest reproducibility of a self-administered FFQ developed for the NOWAC study. In 2002 a random sample of 2,000 women (46-75 years) received the questionnaire twice, about three months apart (response 75%). The potential effect of measurement error in dietary intake on disease risk was estimated by regression calibration using alcohol intake and self-reported hypertension as an example.

For single food items there were some indications of seasonal reporting bias. Food items with the highest proportion of total agreement ($\geq 85\%$), also had the highest agreement for the “never/rarely” consumption category (75–78%). For food groups and nutrients reproducibility ($n = 1,370$) ranged from 0.5–0.8. Although alcohol intake had relatively high reproducibility ($r = 0.72$), OR estimates for the association with hypertension ($n = 1,013$) were attenuated towards the null value compared to estimates corrected by regression calibration. In conclusion, the level of reproducibility observed for the FFQ was within the range reported for similar questionnaire instruments, but may still attenuate estimates of disease risk.

Paper II

Comparing methods for handling missing values in food frequency questionnaires and proposing k nearest neighbours imputation: effects on dietary intake in the Norwegian Women and Cancer study (NOWAC)

The objective was to investigate item nonresponse in a self-administered FFQ developed for the NOWAC study, and to assess the effect of imputing missing values on dietary intake levels. In 2002 a random sample of 2,000 women (46-75 years) received the questionnaire twice, about three months apart (response 75%). Imputation with the null, median, mode, and retest values was compared to k nearest neighbors (KNN) imputation, which was adapted and applied to FFQ data.

Missing within respondents was positively associated with age. In the overall test data matrix ($n = 1,430$) 16% missing values was imputed. Imputed food frequencies ranged from $< 1\%$ (potatoes) to 50% (instant coffee) with a median of 12%. Imputation with retest values increased total energy intake compared to null value imputation, but the largest difference was observed for KNN, which increased the median daily energy intake by 11%. In conclusion, missing values present a methodological challenge. The application and evaluation of newer imputation methods are encouraged to reduce imputation errors and give more accurate intake estimates.

Paper III**Reproducibility of self-reported melanoma risk factors in a large cohort study of Norwegian women**

The objective was to study the test-retest reproducibility of melanoma risk factors, including the use of sunscreen and sun protection factor (SPF), in a self-administered exposure follow-up questionnaire from the NOWAC study. In 2002 a random sample of 2,000 women (46-75 years) received the questionnaire twice, about three months apart (response 75%).

Kappa, κ , was 0.77 for freckling when sunbathing. Weighted kappa, κ_w , for sunbathing vacations to southern latitudes and solarium use last five years was 0.71 and 0.70, respectively. Reproducibility was also good for sunscreen use (yes/no) on specific occasions ($0.64 \leq \kappa \leq 0.74$) and the corresponding SPF. Spearman's correlation coefficient, r_s , for SPF on sunbathing vacations to southern latitudes was 0.73 for today and 0.71 for 10 years ago. For the eight most common sunscreen brands, reproducibility was lower for use (yes/no) ($0.31 \leq \kappa \leq 0.60$) than for SPF ($0.38 \leq r_s \leq 0.87$). The frequency of sunburn, and sunbathing vacations in Norway or outside southern latitudes, had fair reproducibility with κ_w of 0.49 and 0.47, respectively. This study was larger than previous studies, permitting subgroup analyses. In conclusion, the overall reproducibility of the questions was acceptable and not affected by age, education, or skin color. In particular, the study has added new knowledge about the reproducibility of sunscreen use and SPF.

Paper IV**Recall bias in melanoma risk factors and measurement error effects: a nested case-control study within the Norwegian Women and Cancer Study**

The objective was to study recall bias in melanoma risk factors, including host factors, and history of sunburn, sunbathing vacations, and solarium use. In 2004 a nested case-control study with 208 cases and 2,080 matched controls was conducted within NOWAC (women aged 41-76 years). The response was 78% (163 of 208) for cases, and 77% (1,596 of 2,080) for controls.

Measures of agreement and misclassification "shifts" (proportion with 1st measurement < 2nd measurement) were calculated by comparing responses at enrolment in 1991-1997 and in 2004 stratified on case-control status. OR estimates of melanoma were calculated based on the prospective and retrospective questionnaire measurements.

Shifts in cases only were observed for hair color (62% and 52% in cases and controls, respectively), and skin color after chronic sun exposure (67% and 49% in cases and controls, respectively). Larger shifts in cases than in controls were observed for nevi (71% and 57% in cases and controls, respectively). Differences in OR estimates indicate differential measurement error. In conclusion, the limited body of literature indicates that retrospective measures of melanoma risk factors are susceptible to recall bias, but the results are not consistent for the different exposures.

5 Discussion

To summarize the main findings from the present methodological sub-studies, the observed level of measurement errors and missing values in the NOWAC data seems to be within the range of other studies, but may still affect outcome measures. The results support the need for statistical corrections.

The validity of studies is usually separated into internal and external validity. Internal validity is the validity of the inferences drawn as they pertain to the members of the source population (7). Various forms of bias can detract from internal validity; the main forms are selection bias, information bias, and confounding (section 2.2.1). In other words, to ensure high internal validity there should be no bias in the way data are collected, analyzed, and interpreted. Internal validity is a prerequisite for external validity, which is the validity of the inferences as they pertain to people outside the source population, i.e. the generalizability.

Both the internal and external validity of the test-retest and recall bias study will here be discussed, beginning with internal validity in terms of the study design and data collection, statistical analysis, and data interpretation. Last, some future perspectives are presented, including implications of the study results.

5.1. Study design and data collection

5.1.1. Test-retest study

The test-retest study was conducted in 2002 in women aged 46-75 years. The study was based on a sample of 2,000 women drawn at random from 14,817 early respondents to an exposure update questionnaire (second mailing) in the NOWAC cohort. Compared to previous studies, this was a large study of FFQ reproducibility, and the largest study to date of melanoma risk factor reproducibility. Due to the sample size, the estimates are generally precise with narrow CIs. The response was relatively high (75%). No indications of selection bias were found when comparing background characteristics of respondents with the total study sample (Paper I and III).

For practical reasons, the 2,000 women were drawn from the early respondents who could represent a different group of individuals than those who respond later. To investigate this possibility, data were available on the number of days taken to return the retest questionnaire, but time appeared to have little effect on the proportion of missing values (Paper II). A previous study found the initial stage respondents to be similar to all respondents (108).

Due to the previously described mailing procedure (section 3.2.1), the early respondents had a different age distribution (about 10% more women from the younger age group) than all respondents (Table 1). For reproducibility of melanoma risk factors (Paper III) there were no indications of heterogeneity across age groups, but missing values in the FFQ were found to increase with age (Paper

II). Thus, the magnitude of missing values in the FFQ data could be slightly underestimated compared to all respondents to the exposure update questionnaire.

5.1.2. Recall bias study

The recall bias study was conducted in 2004 in women aged 41-76 years. The study was designed as a nested case-control study and included all 208 cases of melanoma within the NOWAC cohort who were alive and could be contacted in 2004. The 2,080 controls (ten per case) were sampled randomly from the non-cases, after matching on birth year and subcohort. The sampling of controls from the cohort reduced the possibility of inappropriate control selection, which may be a problem in case-control studies. The response proportion for cases (78%) and controls (77%), and the selected background characteristics, were similar (Paper IV).

Recall bias was estimated in a setting with no particular emphasis on melanoma, which could influence the questionnaire responses. The melanoma risk factors were included in a larger questionnaire, and the study subjects were not aware of the study objective. Only questions with identical wording were compared, and the historic questions referred to the same time periods. However, the time between questionnaire administrations ranged from 6-13 years, with a mean of 11 years. When cases completed the second questionnaire, time since diagnosis ranged from 1.4-12.9 years with a mean of 6.3 years. Therefore, effect of time since diagnosis on recall was investigated. Measures of agreement and symmetry for the melanoma cases ($n = 162$) were stratified on years since diagnosis using two (1 to 6, > 6 to 13) and four (1 to 3, > 3 to 6, > 6 to 9, > 9 to 13) categories, but no apparent trend was found.

Inclusion of only live cases and controls could cause some selection bias, but may not necessarily affect estimates of recall bias. Among all women excluded due to death before the present study ($n = 2,138$), 1% had melanoma as their cause of death. A density sampling of controls at the time of diagnosis for each case would have been a more optimal study design, but implies that the recall bias study had to be initiated shortly after the NOWAC cohort was established.

5.2. Statistical analysis

5.2.1. Reproducibility of continuous exposures

Reproducibility is typically evaluated by correlation coefficients, and the term reliability coefficient was used in Papers I and III, as a term adopted from the statistics literature. For food groups, energy, and nutrients (continuous variables), r and r_s are frequently reported reliability coefficients in the nutrition literature. They provide an assessment of the ranking of individuals, which is important for risk estimation in epidemiologic studies, but r is restricted to measuring linear associations and is more sensitive to outliers than r_s . This may give different values for r and r_s , as

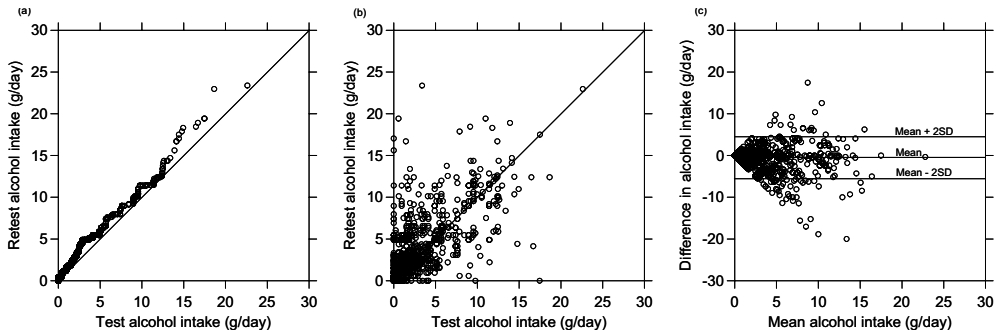
observed in our study for the food groups “dairy products” and “alcoholic beverages”. When outliers in the data were removed, r approached the value of r_s . Log-transformation had the same effect (data not shown). If r and r_s are similar, r is usually preferred, as it carries more information in terms of data variability. However, neither coefficient measures absolute agreement (109).

In Paper I two ICCs were investigated as alternative measures to r or r_s . When the mean and standard deviation (SD) of two measurements are similar, $ICC(1,1)$ and r will be similar. However, $ICC(1,1)$ penalizes differences in mean and SD by giving a value that is lower than r (110), and may therefore be used as a measure of absolute agreement. A low value of $ICC(1,1)$ indicates large within-person variation and low precision of measurements. $ICC(3,1)$ does not penalize systematic errors and has been proposed in situation with systematic learning or fatigue effects when this is not considered defects of the measurement instrument (111). In Paper I nearly identical values were observed for r , $ICC(1,1)$ and $ICC(3,1)$. Thus, it would have been interesting to examine how large the differences in mean and variance must be to generate larger discrepancies between the coefficients, but this was considered outside the scope of the paper. In situations with more severe misclassification problems, several reliability coefficient may be useful as different coefficients can give different information (112). Because the ICCs are based on variance decomposition, they are not restricted to linear associations (or two replicates).

To measure the reproducibility of skin color (Paper III), a discrete variable with ten categories, $ICC(1,1)$ was used. For sun protection factor, the values tended to cluster around specific factors (e.g. 2, 4, 6, 8, 10, 12, 20, 25, 30, and 60). Therefore, r_s based on data ranks was calculated.

The test-retest reproducibility of continuous variables may also be depicted graphically, as illustrated for alcohol intake. Figure 6 was prepared for Paper 1, but not included in the final version due to space considerations.

Figure 6 Quantile plot (a), scatter plot (b), and Bland-Altman plot (c) for alcohol intake (g/day) in the test and retest food frequency questionnaire, $n = 1,370$



Plots are helpful to visualize error. The quantile plot (a) compares distributions and shows that the quantile values for the retest are generally higher than for the test, and above the line of agreement.

This indicates a shift in the retest distribution towards a higher intake, which is less apparent in the other plots. In the scatter plot (b) it can be seen that some subjects with null intake in the test had up to 17g of alcohol in the retest, and vice versa. The Bland-Altman plot (c) shows that the individual differences between test and retest increase with increasing consumption. The mean difference and limits of agreement (± 2 SD) have also been included (113).

5.2.2. Regression calibration

The purpose of the regression calibration was to investigate the potential effect of using an exposure variable with relatively high reproducibility in an analysis of disease risk. Alcohol (g/day) with $r = 0.72$ (95% CI: 0.69, 0.75) and hypertension were taken as the example. The *rcal* function for regression calibration in STATA was used, which is one of few implemented functions for measurement error correction. The *rcal* function is based on the assumption that the measurement error has constant variance, but the Bland-Altman plot in Figure 6 (c) shows that the assumption was not fulfilled. However, this violation does not affect standard errors and CIs generated by bootstrap, as in the present analysis.

The association between alcohol intake and hypertension was analyzed cross-sectionally in a logistic regression model, but regression calibration can be applied to any study design (cross-sectional-, case-control-, or cohort data), or regression model (17). The uncorrected estimates were attenuated (having values closer to OR = 1) than the estimates corrected by regression calibration. The effect was more clearly seen for an increase of 10 g of alcohol per day (a little less than the amount in a standard glass of wine in NOWAC). Although measurement error in the exposure will cause attenuation in the current example, the magnitude may be difficult to predict without performing the correction. The crude estimates were presented to avoid the influence of measurement errors in covariates. On the other hand, the effect of the calibration may have been different in a multivariate model with control of potential confounders.

In a historical cohort study of families in pre-war Britain (the Boyd Orr cohort), diet-cancer associations were corrected for within-person error by regression calibration in STATA using two repeated 7-day household food inventories (61). When hazard ratios from multivariate analyses were adjusted for measurement error in energy intake ($ICC = 0.80$ for energy intake, two replicates at household level), there was no consistent change in the strength of associations. When ORs were adjusted for measurement errors in fruit intake ($ICC = 0.78$ for fruit intake, two replicates at household level), energy intake, and household food expenditure, the association between fruit intake and mortality from cancers not related to smoking, was generally strengthened. Before calibration, the naïve OR estimate was 1.02 (95% CI: 0.83, 1.26) per 40 g/day increase in fruit intake. The calibrated result was 1.11 (95% CI: 0.75, 1.64). As illustrated here, a general effect of measurement error correction is to widen the CIs.

Within the EPIC cohort, a calibration study has been undertaken to correct dietary intake data (mainly from FFQs) for systematic over- and under-estimation compared to 24-hour recall as the reference method (102). Regression calibration has been used in several multivariate analyses of fruit and vegetable intake in relation to different cancers (114-117). Only one of the studies compared uncalibrated and calibrated risk estimates so the effect of the correction could be evaluated from the published results (114). Using calibrated data, risk estimates were somewhat stronger, but with wider confidence limits, resulting in nonsignificant estimates when compared with the original data. A high intake of garlic/onion vegetables was associated with a borderline significant reduced risk of ovarian cancer. Before calibration the naïve estimate indicated a 7% decrease in risk with a hazard ratio of 0.93 (95% CI: 0.86, 1.00) per 8 g increment. The calibrated result indicated a 21% decrease in risk with a hazard ratio of 0.79 (95% CI: 0.62, 1.01) (114). Although there are some examples of the application of measurement error corrections, exposure measurement error is often ignored (21).

5.2.3. Reproducibility of categorical exposures

Categorical variables included responses to single food items in the FFQ (Paper I), and most melanoma risk factors (Papers III and IV). The kappa coefficient was calculated to summarize total agreement beyond that expected by chance. A comparisons of kappa across studies may be difficult (118, 119). One reason is that the magnitude of the coefficient is affected by the number of categories in the measurement scale. In the test-retest study of melanoma risk factors (Paper III), the highest kappa value was found for freckling when sunbathing, a dichotomous variable.

The selection of weights also affects the interpretation of kappa. In Paper I, κ (simple) and κ_w (weighted) were compared, with κ_w generally being higher than κ , indicating that most of the misclassification was found in categories close to the table diagonal. Cicchetti-Allison (linear) weights were used in all calculations of κ_w . Two other reproducibility studies of melanoma risk factors (64, 120) have specified the use of Cicchetti-Allison weights, but few studies describe the choice of weights. Quadratic weights place even greater emphasis on measurements that agree closely by giving higher values for κ_w . Using the data in Paper III as an example, quadratic weights increased κ_w for all variables, e.g. from 0.47 to 0.60 for sunbathing vacations in Norway or outside southern latitudes, from 0.65 to 0.75 for small symmetric nevi on the arms, and from 0.70 to 0.77 for solarium use (data not shown).

Kappa also depends on the marginal frequencies of the two-way table. In Paper III, absolute agreement was almost similar for sunburns and sunbathing vacations to southern latitudes (73% and 76%, respectively), but κ_w was much lower for the former (0.49 vs. 0.71). Both variables had five categories, but different marginal frequencies. For sunburn the majority (98%) recorded one of the first two categories, while for sunbathing vacations to southern latitudes, the whole scale was used to a larger degree. Similarly, in the recall bias study (Paper IV), marginal frequencies explain that κ_w was

low, or even negative, for high values of absolute agreement for asymmetric nevi in controls, and solarium use at ages < 10 and 10-19 years in cases and controls. Also here the data clustered in few categories. Only one case in the prospective questionnaire and six cases in the retrospective questionnaire reported some solarium use at age 10-19 years.

As illustrated above, absolute agreement can give useful information in addition to the reliability coefficient. Furthermore, symmetry should also be investigated as high agreement or high kappa does not imply an absence of systematic shifts in responses. In the test-retest study (Paper III), sunbathing vacations to southern latitudes and solarium use had similar agreement (76% and 79%, respectively) and similar κ_w (0.71 and 0.70, respectively), but the symmetry test was only significant for solarium use (p-values of 0.19 and < 0.001, respectively). This indicates lack of symmetry or a shift towards reporting reduced solarium exposure in the retest.

5.2.4. Missing values and imputation methods

All imputation methods used in Paper II (null value, sample mode, and sample median, and KNN) fall into the category of single imputation methods, implying that each missing value is replaced by a single value. Single imputation methods are usually easy to implement, but ignores any uncertainty about the correct value to impute. This can be estimated by doing multiple imputation (MI), which is based on repeated simulations of the missing values (121). MI is a model based approach, relying on specific modeling assumptions, and the method may be difficult to apply without proficiency in advanced statistics. MI was compared to single imputation (baseline value and last value carried forward, LVCF), and analysis of the complete data in the GISSI-Prevenzione study (76). It was concluded that MI was more likely to provide valid estimates compared to the other methods. MI best preserved the distribution of food intake frequencies and relationships between variables while producing plausible estimates of variability. MI has also been applied in the Nurses' Health Study (25), but the published literature on missing value estimation in FFQ data and the effects on dietary intake levels is still small. Currently there is no recommended practice.

One case-control study found marginal difference between imputation with the null value and the sample median (74). However, imputation was not likely to have a large effect in this study due to the low proportion of missing values. Only missing questionnaire values that remained after a resurvey by telephone were imputed (1-12% in food items). The difference in mean energy intake between the two imputation methods was about 3% in both cases and controls. Other studies have shown that when missing values are imputed with values from a resurvey of the same subjects, energy intake increases by 11% (44), or 370 kcal/day on average (28). These studies indicate that null value imputation may lead to underestimation and misclassification, and support the need for alternative imputation methods.

The KNN method is more sophisticated than the other single imputation methods used, since values are estimated for each individual, but without having to specify a strict model as with MI. With

KNN, a missing value for a particular subject was imputed with the weighted mean of values from k other subject with similar responses to the other food items. Dietary pattern analysis may provide some justification for using FFQ variables as predictors, since the intake of different foods tends to be correlated (95). However, other predictors could have been used instead of or in addition to the FFQ variables.

When comparing the effects of imputation on dietary intake (food groups and nutrients) the null imputed test data were used as the reference method for two main reasons: null imputation appears to be common practice and gives the most conservative intake estimate. The reasons for not using e.g. the complete retest data as reference is that it would be difficult to interpret the effects of imputation separately from the underlying differences between the test and retest measurements (Paper I). Also, the reduction in sample size and statistical power would be too large for a meaningful analysis since the retest data were complete for only 6% of the respondents. Since the reference method can only be used for relative comparisons, it cannot be determined which imputation method is more accurate, only that the choice of method may affect dietary intake.

5.2.5. Recall bias

The nested case-control study was conceived with frequency matched controls as previously mentioned (section 3.3.1), but controls were individually matched to cases in the data set. In the analysis of melanoma risk (Paper IV) unconditional logistic regression was used. One potential effect of using an unmatched analysis with data collected in a matched design, is attenuation of the effect (122). Thus, the OR estimates presented in Paper IV may be underestimated. As the paper is currently under revision for resubmission, the issue of matched analysis will be addressed in the revised manuscript. An analysis of potential selection bias in cases and controls will also be included by comparing respondents to those who were invited, using data from the enrolment questionnaire. It should be noted that the CIs for the symmetry proportions (%) in Paper IV (Table 3) are too narrow. The CIs were derived from the total number (n) of cases and the controls, respectively, instead of only the subgroups of misclassified subjects. Thus, the precision of the estimates are overestimated, in particular for cases. The CIs will be corrected in the revised manuscript, and conclusions about significant differences between cases and controls must be revised.

Another point related to the analysis, is that 17 cases of melanoma were diagnosed within the first year of follow-up. These women could be prevalent cases or suspect melanoma when completing the enrolment questionnaire, which may have affected their responses. However, exclusion of the 17 cases only had a negligible effect on measures of agreement and symmetry for cases. Exclusion of the 17 cases and their matched controls in the analysis of melanoma risk did not change the significance of the trend estimates. To avoid loss of power, the 17 cases with controls were included in the final data presentation.

5.2.6. Statistical power

In Paper I (reproducibility of FFQ data) the reliability coefficients were estimated with a sample size of 1,370, and Pearson's r for food groups ranged from 0.50-0.79 (median 0.66). The range for energy and nutrients was narrower. If the correlation is assumed to be 0.65, the statistical power to detect a value less than 0.60 or greater than 0.70 is $\geq 86\%$.

For food groups, energy, and nutrients, the power to detect a mean within-person (test-retest) difference of null using a paired t-test, ranged from $\geq 90\%$ (e.g. fruit, alcoholic beverages, energy, total fat, calcium) to $\leq 10\%$ (e.g. meat and meat products, cakes, coffee, sweets and salty snacks, sugar, and vitamin D). The wide power range for the same sample size is explained by variations in the magnitude of the observed differences and their standard deviations.

In Paper II (missing values in FFQ data) the sample size in the main analysis ($n = 1,430$) was slightly larger than in Paper I. Power calculations for a within-person difference of null between the reference method and imputation with retest values (paired t-test) was $\geq 98\%$ for all food groups, except potatoes (37%). Power was $\geq 99\%$ for energy and all nutrients.

In Paper III (reproducibility of melanoma risk factors) the test-retest agreement of host factors and sun exposure variables was calculated from two-way contingency tables with sample sizes ranging from $n = 987$ to $n = 1,448$. Power calculations based on a one sample test for a proportion equal to 50% (i.e. the proportion with test category $>$ retest category), show that power was $\geq 84\%$ for all variables, except for sunbathing in Norway or outside southern latitudes (35%).

In Paper IV (recall bias in melanoma risk factors), the analyzed sample was close to the estimated sample size in the power calculations (section 3.3.3).

5.3. Data interpretation

5.3.1. Reproducibility of FFQ data

The estimated reliability coefficients for the intake of food groups and nutrients ranged from 0.5-0.8 with an approximate median value of 0.70. Reproducibility studies of other self-administered FFQs designed to assess habitual diet over the past year, have reported median values between 0.6 and 0.7 for r_s , r , or $ICC(1,1)$ in Norwegian (123), Swedish (29, 72), and Finnish women (124, 125). The reproducibility of the FFQs used by other EPIC centers is similar (126-129) or slightly higher with median values between 0.7 and 0.8 for r_s or r (130, 131). In the studies cited above, the time period between administrations varied from 1-12 months. Thus, the reproducibility of the FFQ used in the NOWAC study appears to be within the range reported for similar populations and questionnaire instruments.

The implication of including a dietary intake variable with a reproducibility of about 0.70 in an epidemiologic analysis was investigated by correcting disease risk estimates by regression calibration

(Paper I). Currently there are few studies with presentations of both uncorrected and corrected estimates of disease risk, so the effect of the correction can be evaluated (section 5.2.2).

In cohort studies, such as NOWAC, measurement errors in the exposure are assumed to be nondifferential with respect to disease. However, exposure measurement errors may be differential with respect to covariates or confounders. Studies of FFQ reproducibility are typically undertaken as part of demanding validation studies (132, 133) with relatively small sample sizes and limited opportunities for stratified analyses. However, one large study did not find FFQ reproducibility to be materially affected by age, obesity, smoking, or alcohol intake (134).

5.3.2. Reproducibility of melanoma risk factors

In Paper III the reproducibility of the melanoma risk factors was discussed in relation to ten published studies with one or more exposure variables of relevance to the present work. Two studies of women in our neighbor country Sweden were of special interest (64, 135), a Swedish cohort study in particular (64). Both Norway and Sweden have homogeneous fair-skinned populations, and registration of bathing vacations to southern latitudes is of importance in both Norwegian and Swedish studies of melanoma. The reproducibility of sunbathing vacations during the last five years was much better for vacations to southern latitudes than for vacations in Norway or outside southern latitudes. A possible explanation is that vacations to southern latitudes are generally less frequent with a time period which can be more clearly defined. For vacations to southern latitudes, the reproducibility was similar to estimates for vacations to sunny resorts in the past year in one of the Swedish studies (135). The reproducibility of sunscreen use on different occasions and of the corresponding SPF was also better for vacations to southern latitudes than in Norway or outside southern latitudes. Kappa was good for use of sunscreen at Easter (yes/no), and the highest correlation coefficient for SPF used on different occasions was seen for Easter today. A fairly low reliability coefficient was found for untanned skin color and sunburn the last five years. Sunburn is the melanoma risk factor that has been studied in the majority of reproducibility studies, and the reliability coefficients are generally lower than for other variables.

Homogeneity of kappa was tested for freckling, skin color, sunburns, sunbathing vacations to southern latitudes, sunbathing in Norway or outside southern latitudes, and solarium use across strata of age, education, and skin color groups. Kappa was not materially affected by any of these factors, and the overall reproducibility of the questionnaire was within the range reported for other studies, typically 0.4-0.8 for κ , κ_w , ICC , or r_s . Thus, the range is similar to the typical range for FFQ data, although a direct comparison cannot be made.

The implication of using categorical data with this level of reproducibility in epidemiologic analysis is difficult to assess for reasons discussed in Paper III. In general, correction procedures are much less developed for categorical than for continuous exposures (136).

5.3.3. Seasonal reporting bias

The test and retest were administered about three months apart (February/March and May/June). The short interval was expected to largely reflect variations associated with completing the questionnaire rather than changes in exposure. However, recent food choices seem to have influenced the reporting of some items in the FFQ, also referred to as seasonal reporting bias (137). A strong indication was the high reported intake of oranges in the test FFQ, which was returned shortly after Easter when oranges are traditionally eaten and marketed in Norway. The retest was returned in early summer, with much lower reports. Previous studies in Norway (123) and other countries (137) have also found the intake of citrus to be highly seasonal. Other differences that seemed to reflect a change from a winter to a summer diet were the lower reports of typical winter vegetables (carrots and swede), and roast meat in the retest, and the higher reports of salad, wine, and meat chops, which are popular for outdoor barbecuing. For oranges, the difference was sufficient to affect the mean intake of fruit and vitamin C. Although the results may have been influenced by the time of year the FFQ was administered, the significant differences observed were generally of a small magnitude.

For melanoma risk factors, there are fewer reports of seasonal reporting bias. However, seasonal press articles and media campaigns could possibly have influenced the test-retest responses. Ahead of the Easter school holiday (23 March - 3 April 2002) caution is promoted due to the combination of snow and UV-radiation in mountainous areas, which are popular vacation spots. Public information about how to reduce the risk of skin cancer is communicated before the summer school holiday (beginning 22 June 2002). Thus, both the test and the retest may have been influenced by the population's knowledge about UV exposure as a potential risk factor. Relatively recent tanning around Easter may explain that the highest correlation coefficient for use of SPF was seen for Easter.

5.3.4. Recall bias in melanoma risk factors

In previous studies of melanoma risk factors, recall bias has been analyzed by different measures stratified on case-control status; reliability coefficients, contingency tables, confidence ratings, and mean change in questionnaire scores (5, 79, 81). Similar to Weinstock et al. (79), the test of recall bias in the present study (Paper IV) relied on the demonstration of a shift in self-reported exposure status associated with the diagnosis of melanoma, but shifts were measured by symmetry (section 3.6.1) and not questionnaire scores. Unlike the other nested case-control studies (5, 79), the present study found shifts in hair color (symmetry 62% and 52% in cases and controls, respectively). Differences in agreement (%) and κ_w between cases and controls were also considered to be indications of recall bias. This is because recall may simply be more inaccurate in cases compared to controls (or vice versa), without there being a shift in the responses. Percent agreement overall (Paper IV) was somewhat lower for cases with a median of 60% (range 42-100%) compared to controls with

a median of 65% (range 54-99%). This result was reflected in κ_w with a case median of 0.40 (range -0.01-0.89), and a control median of 0.46 (range 0.10-0.87).

In studies of recall bias with a nested case-control design, OR estimates of melanoma have been compared for the prospective and retrospective exposure measurement (5, 79). However, this analysis ignores the paired nature of the observations (79). Further, many factors that affect recall apply equally to cases and controls, e.g. the time interval since exposure, and the degree of detail required. In the present study, differences in OR estimates were not interpreted as recall bias, but rather as the overall effects of differential and nondifferential measurement errors. The results (Paper IV) showed both attenuation and accentuation of the prospective estimates, also between categories of the same variable. This type of bias is difficult to characterize (11).

For some of the risk factors, including eye color, and history of sunburn, sunbathing vacations and solarium use, the authors have not found previous studies of recall bias. The limited body of literature indicates that retrospective measures of melanoma risk factors are susceptible to recall bias, but the results are not consistent for the different exposures.

5.3.5. Time interval between measurements

In the test-retest study, the reference period for dietary intake (past year) was largely overlapping for the test-retest interval of 3 months. However, it cannot be excluded that the reproducibility reflects both questionnaire performance and, to some extent, true changes in diet. These factors cannot be separated, but according to Willett (59) both sources of variation contribute to misclassification of the underlying long-term dietary intake. The questions about UV exposure required both long term recall (SPF used on selected occasions 10 years ago), and shorter term recall (sunburn, sunbathing vacations and solarium use the last five years), whereas memory was less important for questions about host factors (freckling, number of nevi on arms, untanned skin color) and use of sunscreen and SPF today. However, the reproducibility did not vary systematically according to the degree of memory required. The reproducibility of sunscreen use was better for today than for 10 years ago, but sunscreen use 10 years ago had similar or better reproducibility than e.g. untanned skin color.

In the recall bias study, time between questionnaire administrations varied from 6-13 years, and a higher degree of recall was required for some questions compared to the test-retest study. The longest recall period was UV exposure before age 10 years (answered at ages 41-76 years), whereas memory has little influence on eye and hair color. Some pigmentation factors are not stable over lifetime, e.g. hair color and the number of nevi. Changes in hair color should not affect estimates of recall bias, as the change is expected to occur equally in cases and controls. This cannot be assumed for nevi, which may be precursors of melanoma (48). A larger shift in cases than in controls

(symmetry 71% and 57% in cases and controls, respectively) indicated more nevi among cases in the retrospective questionnaire. However, this cannot be attributed to recall bias alone.

5.3.6. Missing values in FFQ data

All nonresponse in a self administered questionnaire may not be considered missing values if e.g. respondents are directed to skip irrelevant questions. Thus, missing values may need to be defined before the magnitude can be assessed (Paper II). Missing values may be reported within persons, within food items, or for the whole data matrix, but this is less common for dietary data.

Few studies report the range of missing values in FFQ data or the proportion of imputed values in the dietary intake calculations. For the Adventist Health Study-2 it was reported that 83% of the FFQs had at least one missing item (75), implying that the FFQ was fully completed by 17%. In the Nurses' Mothers' Study (a nested case-control study within the Nurses' Health Study), a 30-item postal FFQ on childhood diet was fully completed by 33% (25). The proportion of subjects with no missing frequencies in FFQs with 60 to 136 food items, has been reported to range from 30-40% (28). In the test-retest study, the FFQ was fully completed by 6%, which is low compared to other studies. Possible explanations may be that the FFQ is embedded within a larger health- and lifestyle questionnaire, or that the NOWAC cohort members reflect the general population to larger extent than some cohorts based on specific occupations, or religious groups.

Comparing missing in food items, the Nurses' Mothers' Study found that missing or "don't remember" ranged from 4.5% (milk) to 21% (cheese). Conversely, other studies report that milk has the most missing values (72), quantified to about 36% in one study (73). A likely explanation is the listing of multiple sub-types of milk in many FFQs. In the present FFQ (Paper II) milk also had high missing: whole milk (41%), low fat milk (29%), extra low fat milk (45%), and skimmed milk (35%). The majority of subjects seem to prefer one type of milk, in particular for drinking, and tend to skip questions about other types. The same phenomenon has been observed for types of margarine/fat on bread (72, 73), and types of coffee in NOWAC (Paper II), but is more unlikely for other foods, e.g. types of vegetables. For foods with multiple sub-types, no consumption may be an important underlying reason for missing values, and the predominant missing mechanism may not be MAR (missing at random), but NMAR (not missing at random). Imputation methods using many predictors, such as MI and KNN, give better protection against departures from the MAR assumption than imputation with e.g. the sample median.

The search for published papers describing the handling of missing values in FFQs was impeded by few relevant medical subject headings (MeSH) used in MEDLINE and some other bibliographic data bases. No MeSH descriptors for missing values or related terms used in the literature, e.g. data quality, missing data, missingness, completeness of data/information, (item) non-response (nonresponse), non-completion (noncompletion), and omitted items, were found

(<http://www.nlm.nih.gov/mesh/>). The terms were searched for, but not as indexed search terms. Further, missing values is generally not the focus of epidemiologic studies using FFQs. Information about how missing values are handled in the nutrient calculations may only be provided in the methods section, which is usually not searchable (only title and abstract). Thus, relevant papers may have been missed.

5.3.7. Questionnaire design

Reporting errors may to some extent be affected by cognitive issues related to the questionnaire design. In the present study we observed a very low percentage of missing values in all FFQ items not part of a larger question block, or grid. FFQs with a nongrid format may be cognitively easier for respondents to complete, but it increases the page length, and thus the costs for printing, scanning, and mailing. One example is the 36-page Dietary History Questionnaire (DHQ) developed at the National Cancer Institute in USA. When compared to a shorter FFQ with a traditional format, the DHQ performed better for questions on portion sizes and dietary supplements, but not consumption frequencies (138). The proportion of missing/uninterpretable responses was low, but similar. In the present study several blocks of items also had relatively low proportions of missing, e.g. cakes (6 items with 4-10% missing) and meat (9 items with 4-14% missing, except “other meat dishes” with 27%). It could be that smaller blocks are cognitively not too demanding, or that the consumption awareness or desirability of some foods encourages responses. A complete nongrid format is not practical in all studies. One alternative is to mix single questions with smaller blocks as in the NOWAC questionnaire, and to put key foods as single questions or as the first item in a block.

Lower median values for total agreement (%) and κ_w were observed for frequencies when additional questions were asked about amounts. Another study has also found food frequency responses to be sensitive to whether only frequencies were filled in, or both frequencies and portion sizes (73). However, changes in food frequency may be compensated by changes in portion size, and do not necessarily affect total food quantity.

A questionnaire layout with check boxes represents a difficulty with regard to missing values. The response option “Do not use fat on bread” and seven types of fat composed a group of 8 separate 0/1 variables, each with one check box to confirm “yes”. When check boxes are unmarked, the answer “no” cannot be distinguished from a missing value. However, if both the use of fat and all types of fat had open boxes, this was interpreted as missing information and defined as one missing value because either “Do not use fat on bread”, or at least one type should have been marked. Check boxes were also used to record the melanoma risk factors of sunscreen use on specific occasions, and sunscreen brands (section 3.2.7). Therefore, the reproducibility of these variables had to be assessed in terms of test-retest consistency (i.e. no. checking ‘yes’ in retest / no. checking ‘yes’ in test).

5.4. External validity

NOWAC is a national, population-based cohort. The crude response proportion at enrolment was 57% (first mailing). In the second mailing (first exposure update) the response proportion was 81% (corrected for death and emigration). The last questionnaire in the test-retest study and in the recall bias study was the third mailing to many of the cohort members with response $\geq 75\%$. The participants in NOWAC are known to be slightly younger and slightly more educated than those who have been invited (section 3.1.4), but the external validity is high with regard to the general population of Norwegian women in the selected age groups.

The women included in the present methodological sub-studies were drawn from the NOWAC cohort. No significant indications of selection bias were found. Thus, the two study populations seem to be representative of NOWAC women, and Norwegian women of the same age. The reproducibility of dietary intake and melanoma risk factors appears to be within the range reported for similar populations or questionnaire instruments. However, questionnaires may not have the same reproducibility (or validity) for men and women, for different age groups, and for populations of different regions or countries (139). Only 6% of the respondents fully completed the FFQ section (no missing values), which is lower than reports for other FFQs and study populations. It is uncertain if the 6% estimate is more representative of the general population, than a 30-40% estimate based on selected cohorts of e.g. health professionals or Adventists. It may also be that FFQ sections within larger health- and lifestyle questionnaires are more prone to item nonresponse than questionnaires that only addresses dietary intake.

It is also unknown if the present estimates of recall bias in melanoma risk factors apply equally to studies collecting exposure information by interview (4), or to studies where the focus on melanoma is explicit (4). Further, the relatively long period between diagnosis and recall of exposure may not approximate all case-controls studies of melanoma. However, time since diagnosis did not appear to have an affect on recall.

6 Future perspectives

6.1. Implications of results

This thesis project has provided estimates of within-person error (in dietary intake and melanoma risk factors), and missing values (in dietary intake) in self-reported questionnaire data from a large cohort study of Norwegian women. Further, recall bias (in melanoma risk factors) was estimated in a nested case-control setting. The methodological sub-studies were designed with relatively large sample sizes in representative sub-samples of the population to facilitate the implementation of the results in later analysis. Reproducibility estimates for the FFQ data have been included in a study of regression calibration with categorized exposure variables (136) and will be used in a forthcoming measurement error correction of the association between fish intake and colon cancer in the NOWAC cohort (88).

6.2. Future perspectives on FFQ data

Measurement error of diet is a recognized problem when examining diet-disease associations, especially low magnitude associations, such as diet and cancer. Some more recent validation studies using biomarkers, have suggested that the degree of error associated with FFQs may be larger than previously estimated (132, 133). The results have spurred a debate over whether FFQ data can be used to detect relations between diet and cancer (140, 141). Data from food diaries or food records have supported a positive association between dietary fat and breast cancer, whereas FFQ data from the same subjects show no relation (142, 143). This difference could possibly be attributed to the larger measurement errors in FFQ data.

Few studies have corrected diet-cancer associations for measurement error in FFQ data, and the effects have been modest. The main exposure in recent studies has been fruit and vegetable intake. One possible explanation for the small effects is that the true associations are close to null or very weak. Another possibility is that the correction procedures are not effective because the underlying error structures in the data are not well described by the applied measurement error models.

At present it is uncertain what effect measurement error correction will have on diet-cancer associations based on FFQ data. It is nevertheless important to continue the development of correction procedures due to the large amount of FFQ data that have already been collected.

Alternative methods to FFQs come at a much higher cost. As part of the design of the Women's Health Initiative, alternatives to FFQs were considered. The estimated costs of dietary assessment at enrolment (for 160,000 women) were \$1.2 million for FFQs, \$23.2 million for 3-day food records, and \$25.0 million for three 24-hour dietary recalls (141). However, the cost of validation studies and correction procedures should also be considered as part of the cost of FFQs.

6.3. Future perspectives on missing data

Missing values in FFQs present another methodological challenge in addition to measurement errors. The extent of the missing value problem is not well documented, as few studies report the range of missing values in FFQ data or the proportion of imputed values in the dietary intake calculations. More documentation is encouraged, as well as the application and evaluation of more advanced imputation methods, which may reduce imputation errors and give more accurate intake estimates. It is too early to make recommendations with regard to KNN, as the method has only been applied and evaluated to a very small extent. To determine if KNN imputation performs better than the other methods used, the next step would probably be to do a simulation study.

6.4. Melanoma risk factors and future case-control studies

It can be reasonably assumed that not all exposure-disease associations are equally prone to recall bias. The risk is increased for exposure-disease associations that are well known by the public. This condition is fulfilled for the relationship between UV exposure and melanoma. Any current study based on retrospective ascertainment of UV exposure in melanoma cases and suitably chosen controls faces the problem of recall bias.

Measurements of reproducibility and recall bias in melanoma risk factors are not only essential in studies of melanoma, as UV exposure is becoming increasingly important in studies of vitamin D and risk of several cancers (144-146).

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APPENDIX A

Original printed material for the test in test-retest study (2002): letter of introduction, photo booklet, questionnaire, and reminder card.

(Paper I, II, and III)



KVINNER OG KREFT

Orientering om undersøkelsen

Du samtykket i 1996/97 til å fylle ut et fire siders spørreskjema som du mottok i posten – «Kvinner og Kreft». Spørreskjemaet tok opp en rekke forhold knyttet til ditt liv, som barnefødsler, p-pillebruk, kosthold, røyking og sosiale forhold. Formålet med undersøkelsen var å se om disse forhold har betydning for utvikling av kreft hos kvinner. Resultatene vil bli publisert i dagspressen og i internasjonale fagtidsskrifter. Ansvarlig for undersøkelsen er professor Eiliv Lund.

Vi retter nå en ny forespørsel til deg om du nok en gang vil besvare det vedlagte spørreskjema. Begrunnelsen for å kontakte deg på ny er at mange av de spørsmålene du besvarte sist gjaldt levevaner som vi vet endrer seg med alderen. De fleste spørsmålene vil dreie seg om årene siden siste utfylling.

Undersøkelsen er tilrådd av Regional komite for medisinsk forskningsetikk i Nord-Norge. Adressen din henter vi fra det sentrale personregister ved hjelp av Statistisk Sentralbyrå. Som forrige gang inneholder spørreskjemaet kun løpenummer uten annen identifikasjon, for derved å gi dine opplysninger et bedre personvern.

Med noen års mellomrom frem til år 2022 vil vi sammenholde opplysningene du har gitt i undersøkelsen med opplysninger fra Kreftregisteret og Dødsårsaksregisteret. Ved å studere materialet på nytt, håper vi å finne ut årsakene til at noen kvinner får kreft. Alle opplysningene fra spørreskjemaene og registrene vil bli behandlet konfidensielt og etter de regler Datatilsynet har gitt i sin tillatelse.

Det er frivillig å være med i undersøkelsen. Du kan senere trekke deg uten begrunnelse og uten at det vil få noen konsekvenser for deg. Opplysninger du har gitt kan du be om å få slettet.

Vi vil be deg om å besvare det vedlagte spørreskjemaet så riktig som mulig. Dersom ingen av de oppgitte svaralternativ dekker din situasjon, sett kryss for det alternativet som ligger nærmest. Gi eventuelt merknader eller tilleggsopplysninger i skjemaet. Vi spør også alle som deltar om tillatelse til fornyet kontakt om noen år i form av et liknende spørreskjema.

Vi vil senere kontakte en del av deltakerne for å få tatt en blodprøve. Det vil skje hos nærmeste lege, og være gratis. Noen kvinner vil også bli forespurt om å delta i et kostholdsintervju over telefon.

For spørsmål om bruk av hormoner i overgangsalderen finner du bilder i denne brosjyren som skal være et hjelpemiddel (brosjyren skal ikke returneres). Spørreskjemaet sendes tilbake i vedlagte konvolutt som vi betaler svarporto for.

Med hilsen

Eiliv Lund
Eiliv Lund
professor dr.med.

Bente A. Augdal
Bente A. Augdal
prosjektmedarbeider

Bruk av østrogener i og etter overgangsalderen

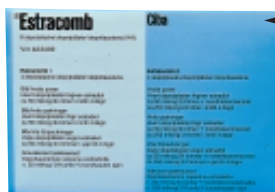
Denne brosjyren er et hjelpemiddel for å huske riktig navn på de hormontabletter/plaster/salver/stikkpiller du har brukt. Under bildene er det oppgitt hvilke år disse var i salg. For noen hormontabletter/plaster finnes det esker med samme utseende, men med ulik styrke av hormonene. Vi ber deg tenke nøye gjennom navnet på de hormon-tabletter/plaster/salver/stikkpiller du har brukt. Eldre avregistrerte preparater er ikke gjengitt med bilder, det gjelder:

- Nr. 201 **Dietylstilbøstrol** 1 mg stikkpiller til skjeden (1976-92)
- Nr. 202 **Dietylstilbøstrol** 0,1 mg tabletter (1980-85)
- Nr. 203 **Dietylstilbøstrol** 0,5 mg stikkpiller (1976-81)
- Nr. 204 **Primodos** tabletter (1961-74)
- Nr. 205 **Østriol** 1 mg tabletter (1975-95)
- Nr. 206 **Østriol** 0,25 mg tabletter (1961-83)

← Nr. 108.
Solgt fra 1976



← Nr. 109.
Solgt fra 1954



← Nr. 110.
Solgt fra 1994



← Nr. 101. Solgt fra 1978



Nr. 102.
Solgt fra 1978

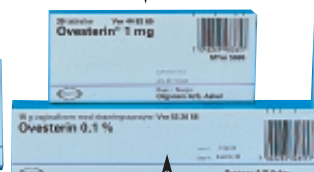


← Nr. 103.
Solgt fra 1978

Nr. 111. Solgt fra 1971



Nr. 112.
Solgt fra 1989



Nr. 113.
Solgt fra 1983



Nr. 114.
Solgt fra 1984



← Nr. 104.
Solgt fra 1953



← Nr. 105.
Solgt fra 1988



← Nr. 115. Solgt fra 1995



Nr. 116. Solgt fra 1995



← Nr. 117.
Solgt fra 1994

Nr. 107. (2mg)
Solgt fra 1967



Nr. 106. (1mg) Solgt fra 1970

← Nr. 118. Solgt fra 1989



← Nr. 120.
Solgt fra 1989

Nr. 119. Solgt fra 1989

Nr. 121
Solgt fra
1996.



←Nr. 123
Solgt fra
1996.

Nr. 126 →
Solgt fra
1997.



Nr. 122
Solgt fra
1996.

←Nr. 124
Solgt fra
1996.



Nr. 125
Solgt fra 1996.



Nr. 127 →
Solgt fra
1997.



Nr. 128
Livial 2,5 mg
Solgt fra
1999 →



↑ Nr. 129
Crinone
Solgt fra
2000



Nr. 130
Indivina 1mg/2,5 mg
Solgt fra
2001

↑ Nr. 132
Indivina 2mg/5 mg
Solgt fra 2001

←Nr. 131
Indivina 1mg/5 mg
Solgt fra 2001



Nr. 133 Diviseq
Solgt fra 2001

P-pille merker i salg 1998-2002

Denne brosjyren er et hjelpemiddel for å huske riktig navn på de p-piller du har brukt de siste årene. Bildene er ordnet alfabetisk. Under bildene er det oppgitt hvilke år p-pillene var i salg.

For noen p-piller finnes det esker med samme utseende, men med ulik størrelse, avhengig av om de inneholder p-piller for en eller flere måneder.

Vi ber deg tenke nøye gjennom navnet på de p-pillene du har brukt.



Nr. 7. Solgt fra 1971



Nr. 10. Solgt fra 1980



Nr. 13. Solgt fra 1978



Nr. 11. Solgt fra 1969



Nr. 12. Solgt fra 1973



Nr. 17. Solgt fra 1985



Nr. 34.
Solgt fra 1990



Nr. 18. Solgt fra 1975



Nr. 19.
Solgt fra
1973



Nr. 35.
Solgt fra
1981



Nr. 37
Solgt fra
2001



Nr. 36.
Solgt
fra
1981

TAKK FOR INNSATSEN!

KVINNER OG KREFT

KONFIDENSIELT

Vinter 2002

Hvis du samtykker i å være med, sett kryss for JA i ruten ved siden av. Dersom du ikke ønsker å delta kan du unngå puring ved å sette kryss for NEI og returnere skjemaet i vedlagte svarkonvolutt.

Hvis du vil være med, ber vi deg fylle ut spørreskjemaet så nøye som mulig, se orienteringen på brosjyren for nærmere opplysninger.

Skjemaet skal leses optisk. Vennligst bruk blå eller sort penn. Du kan ikke bruke komma, bruk blokkbokstaver.

Med vennlig hilsen

Eiliv Lund

Professor dr. med

Jeg samtykker i å delta i JA ☐
spørreskjemaundersøkelsen NEI ☐

Menstruasjonsforhold

Er menstruasjonen din;

- ☐ Regelmessig (naturlig)
☐ Uregelmessig
☐ Uteblitt pga. legemiddelbruk, sykdom, trening, annet
☐ Sluttet/stoppet

Hvis du ikke har menstruasjon;

- ☐ har den stoppet av seg selv?
☐ operert vekk begge eggstokkene?
☐ operert vekk livmoren?
☐ annet, angi

Alder da menstruasjonen opphørte?

Graviditeter

Har du noen gang vært gravid? Ja ☐ Nei ☐

Hvis ja; hvor mange barn har du født (ta med dødfødte og barn som er døde senere i livet)?

Hormonspiral

Har du noen gang brukt
hormonspiral (Levonova)? Ja ☐ Nei ☐

Hvis ja; hvor mange hele år har du brukt
hormonspiral i alt?

Hvor gammel var du første gang du fikk
innsatt hormonspiral?

Bruker du hormonspiral nå? Ja ☐ Nei ☐

Bruk av hormonpreparater med østrogen i overgangsalderen

Har du noen gang brukt østrogen-tabletter/plaster? Ja ☐ Nei ☐

Hvis ja; hvor mange år har du brukt østrogen-tabletter/plaster i alt?

Hvor gammel var du første gang du brukte østrogen-tabletter/plaster?

Hva er den viktigste grunnen til at du begynte å bruke østrogen-tabletter/plaster?

- Lindre plager i overgangsalderen (hetetokter, uopplagthet, underlivsplager mm) ☐
Forebygge benskjørhet (osteoporose) ☐
Forebygge hjerte-/karsykdommer ☐
Annet ☐

Bruker du tabletter/plaster nå? Ja ☐ Nei ☐

Har østrogenpreparatene gitt deg bivirkninger? Ja ☐ Nei ☐

Hvis ja; kryss av for hvilke bivirkninger:

- Uregelmessige blødninger ☐
Brystspenning ☐
Kvalme/magesmerter ☐
Hodepine ☐
Vektøkning ☐
Annet ☐

Førte de ovennevnte bivirkninger til at du forandret
østrogenbehandlingen din? _____ Ja ☐ Nei ☐

Hvis ja;

☐ Skiftet østrogenpreparat

☐ Sluttet

☐ Annet, angi _____



UTFYLLENDE SPØRSMÅL TIL ALLE SOM ETTER 1996 HAR BRUKT ELLER BRUKER PREPARATER MED ØSTROGEN I FORM AV TABLETTER ELLER PLASTER.

For hver periode med sammenhengende bruk av samme østro-
genpreparat håper vi du kan si oss hvor gammel du var da du
startet, hvor lenge du brukte det samme østrogenpreparatet, og
navnet på dette. Dersom du har hatt opphold eller skiftet merke,
skal du besvare spørsmålene for en ny periode. Dersom du ikke
husker navnet på østrogenpreparatet sett «usikker». For å hjel-
pe deg til å huske navnet på østrogenpreparatene ber vi deg
bruke den vedlagte brosjyren som viser bilder av østrogenpre-
parater som har vært solgt i Norge. Vennligst oppgi også num-
mer på østrogen- tabletten/plasteret som står i brosjyren.

Årstall	Antall mnd. med samme preparat	Østrogentabletter/plaster											
		Navn										Nr.	
1997	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1998	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1999	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2002	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sykdom

Har du eller har du hatt noen av følgende sykdommer?



	Ja	Nei	Hvis ja: Alder ved start
Høyt blodtrykk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjertesvikt/hjertekrampe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Årebetennelse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blodpropp i legg eller lår	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjerteinfarkt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migrene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epilepsi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukkersyke (diabetes)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Endometriose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hypothyreose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depresjon (oppsøkt lege)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rakitt (Engelsk syke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slitasjegikt (artrose) i hofte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Østrogenpreparat til lokal bruk i skjeden

Har du noen gang brukt østrogen-
krem/stikkpille? _____ Ja ☐ Nei ☐

Hvis ja;

Bruker du krem/stikkpille nå? _____ Ja ☐ Nei ☐

Selvopplevd helse

Oppfatter du din egen helse som; (Sett ett kryss)

☐ Meget god

☐ God

☐ Dårlig

☐ Meget dårlig



For følgende tilstander kryss av for hvilket år tilstanden
oppsto eller angi årstall for perioden før 1997.

	før 97	97	98	99	00	01	02
Muskelsmerter (myalgi)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fibromyalgi/Fibrositt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kronisk tretthetssyndrom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryggsmerter ukjent årsak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nakkeslengskade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporose/(b.skjørhet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Brudd

Underarmen (håndledd) ☐

Lårhalsen ☐

Ryggsmerter (kompresjon) ☐

Røykevaner

Har du i løpet av livet røykt mer enn
100 sigaretter til sammen? _____ Ja ☐ Nei ☐

Hvis ja, hvor mange sigaretter røykte du i gjennomsnitt
pr. dag i perioden 1997-2001?

Årstall	0	1-4	5-9	10-14	15-19	20-24	25+
1997-2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Røyker du daglig nå? _____ Ja ☐ Nei ☐

Hvis nei, hvor gammel var du da du sluttet
å røyke? _____

Hvor lenge oppholder du deg daglig i rom
med tobakksrøyk?

På arbeid (ant. hele timer) ☐

Hjemme (ant. hele timer) ☐

Røykte noen av de voksne hjemme
da du var barn? _____ Ja ☐ Nei ☐

Hvis ja,

☐ Bare mor

☐ Bare far

☐ Begge foreldre.

Kvinner og Kreft 33, Vår 2002

2

Brystkreft i nærmeste familie

Har noen nære slektninger hatt brystkreft?



	Ja	Nei	Vet ikke	Alder ved start
Datter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Mor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Søster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

Hvor mange helsøsken har du?

(oppgi antall)

Hvilket nummer i søskenflokken er du?

Mammografiundersøkelse

Har du vært til undersøkelse av brystene med mammografi

☐
☐

Hvis ja,

Hvor gammel var du første gangen? (hele år)

Hvor mange ganger har du vært undersøkt?

-etter invitasjon fra Mammografiprogrammet

-etter henvisning fra lege

-uten henvisning fra lege



Fysisk aktivitet

Er det spesielle helsemessige forhold som har påvirket ditt normale aktivitetsnivå det siste året?

Hvis ja, årsak:

Varighet i hele måneder

Arbeid hjemme og ute

Hvor mange hele timer pr. uke bruker du i gjennomsnitt på:

Matlaging

Rengjøring

Klesvask

Innkjøp

Hvor mange hele timer pr. dag bruker du på arbeidsplassen i gjennomsnitt til:

Sitte

Stå

Gå

Løfte

Tunge løft/pleie

Hvor mange trapper (hele etasjer) går du i gjennomsnitt pr. dag.

Kryss ja eller nei for hver av følgende aktiviteter du deltar i. Hvis ja, oppgi hvor mange hele timer pr. uke du bruker i gjennomsnitt til hver av aktivitetene. Eks. trener du 1 time =

Fritidsaktivitet

	Ja	Nei	Vinter	Vår	Sommer	Host
Eksempel: Jogging	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rask gange (f.eks.tur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rolig gange	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sykling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Jogging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Svømming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Gymnastikk/treningscenter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Ballspill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Konkurransedrett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
TV/data (fritiden)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Lesing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Håndarbeid/hobby	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kino/konsert/teater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Forening/kurs/bingo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Spise/sitte stille	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bilbruk (fritid/helger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Snørydding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hagearbeid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dusj/bad/egenpleie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Omsorg (barnepass/pleie)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Annet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mye sover du i gjennomsnitt pr. døgn?



	Vinter	Vår	Sommer	Host
Nattesøvn (timer)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Middagshvil (min.)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mange timer pr. uke bruker du i gjennomsnitt til og fra arbeid?



	Vinter	Vår	Sommer	Host
Gå	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sykle	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bil	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Offentlig kommunikasjon	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Vi ber deg angi din fysiske aktivitet etter en skala fra svært lite til svært mye. Skalaen nedenfor går fra 1-10. Med fysisk aktivitet mener vi både arbeid i hjemmet og i yrkeslivet, samt trening og annen fysisk aktivitet som tur-gåing o.l. Sett kryss over det tallet som best angir ditt nivå av fysisk aktivitet.

Alder	Svært lite										Svært mye
30 år	1	2	3	4	5	6	7	8	9	10	
I dag	1	2	3	4	5	6	7	8	9	10	

Høyde og vekt

Hvor høy er du? (i hele cm.)

Hvor mye veier du i dag? (i hele kg.)

Kosthold

Påvirker noen av følgende forhold kostholdet ditt?

(sett gjerne flere kryss)

- ☐ Er vegetarianer/veganer
 ☐ Har anoreksi
☐ Spiser ikke norsk kost til daglig
☐ Har allergi/intoleranse
 ☐ Har bulimi
☐ Kronisk sykdom
 ☐ Prøver å gå ned i vekt

Vi er interessert i å få kjennskap til hvordan kostholdet ditt er vanligvis. Kryss av for hvert spørsmål om hvor ofte du i gjennomsnitt siste året har brukt den aktuelle matvaren, og hvor mye du pleier å spise/drikke hver gang.

Hvor mange glass melk drikker du vanligvis av hver type? (Sett ett kryss pr. linje)

	aldri/sjelden	1-4 pr. uke	5-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Helmelk (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettmelk (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ekstra lettmelk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skummet (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange kopper kaffe drikker du vanligvis av hver sort? (Sett ett kryss for hver linje)

	aldri/sjelden	1-6 pr. uke	1 pr. dag	2-3 pr. dag	4-5 pr. dag	6-7 pr. dag	8+ pr. dag
Kokekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traktekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulverkaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange glass appelsinjuice, saft og brus drikker du vanligvis? (Sett ett kryss for hver linje)

	aldri/sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Appelsinjuice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus med sukker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus sukkerfri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du yoghurt (1 beger)? (Sett ett kryss)

- ☐ Aldri/sjelden
 ☐ 2-3 pr. uke
☐ 1 pr. uke
 ☐ 4+ pr. uke

Hvor ofte har du i gjennomsnitt siste året spist kornblanding, havregryn eller müsli? (Sett ett kryss)

- ☐ Aldri/sjelden
 ☐ 4-6 pr. uke
☐ 1-3 pr. uke
 ☐ 1 pr. dag

Hvor mange skiver brød/rundstykker og knekkebrød/skonrokker spiser du vanligvis?

(1/2 rundstykke = 1 brødskive) (Sett ett kryss for hver linje)

	aldri/sjelden	1-4 pr. uke	5-7 pr. uke	2-3 pr. dag	4-5 pr. dag	6+ pr. dag
Grovt brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kneipp/halvfint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fint brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knekkebrød o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Nedenfor er det spørsmål om bruk av ulike påleggstyper. Vi spør om hvor mange brødskiver med det aktuelle pålegget du pleier å spise. Dersom du også bruker matvarene i andre sammenhenger enn til brød (f. eks. til vafler, frokostblandinger, grøt), ber vi om at du tar med dette når du besvarer spørsmålene.

På hvor mange brødskiver bruker du? (Sett ett kryss pr. linje)

	0 pr. uke	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Syltetøy og annet søtt pålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brun ost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brunost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttpålegg, Leverpostei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

På hvor mange brødskiver pr. uke har du i gjennomsnitt siste året spist? (Sett ett kryss pr. linje)

	0 pr. uke	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7-9 pr. uke	10+ pr. uke
Makrell i tomat, røkt makrell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaviar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet fiskepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hva slags fett bruker du vanligvis på brødet? (Sett gjerne flere kryss)

- ☐ Bruker ikke fett på brødet
☐ Smør
☐ Hard margarin (f. eks. Per, Melange)
☐ Myk margarin (f. eks. Soft, Vita og Solsikke)
☐ Smørblandet margarin (f. eks. Bremyk)
☐ Brelett
☐ Lettmargarin (f. eks. Soft light, Letta)
☐ Middels lett margarin (f. eks. Olivero, Omega)

Dersom du bruker fett på brødet, hvor tykt lag pleier du smøre på? (En kuvertpakke med margarin veier 12 gram).

(Sett ett kryss)

- ☐ Skrapet (3 g)
 ☐ Godt dekket (8 g)
☐ Tynt lag (5 g)
 ☐ Tykt lag (12 g)

Hvor ofte spiser du frukt? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2-4 pr.uke	5-6 pr.uke	1 pr.dag	2+ pr. dag
Epler/pærer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appelsiner o.l.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bananer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen frukt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du ulike typer grønnsaker?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2 pr.uke	3 pr.uke	4-5 pr.uke	6-7 pr. uke
Gulrøtter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kålrot.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brokkoli/blomkål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blandet salat.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grønnsakblan- ding (frossen).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre grøn- saker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For de grønnsakene du spiser, kryss av for hvor mye du spiser hver gang. (Sett ett kryss for hver sort)

- gulrøtter	<input type="checkbox"/> 1/2 stk.	<input type="checkbox"/> 1 stk.	<input type="checkbox"/> 1 1/2 stk.	<input type="checkbox"/> 2+ stk.
- kål	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- kålrot	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- brokkoli/blomkål	<input type="checkbox"/> 1-2 buketter	<input type="checkbox"/> 3-4 buketter	<input type="checkbox"/> 5+ buketter	
- blandet salat	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3 dl	<input type="checkbox"/> 4+ dl
- grønnsakblanding	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3+ dl

Hvor mange poteter spiser du vanligvis (kokte, stekte, mos)? (Sett ett kryss)

☐ Spiser ikke/spiser sjelden poteter

☐ 1-4 pr. uke ☐ 5-6 pr. uke ☐ 1 pr. dag ☐ 2 pr. dag

☐ 3 pr. dag ☐ 4+ pr. dag

Hvor ofte bruker du ris og spaghetti/makaroni ?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2 pr. uke	3+ pr. uke
Ris.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spagetti, makaroni.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du risengrynsgrøt? (Sett ett kryss)

Aldri/sjelden..... ☐ 1 pr. mnd. ☐

2-3 pr. mnd. ☐ 1+ pr. uke ☐

Hva slags fett blir vanligvis brukt til matlaging i din husholdning? (Sett gjerne flere kryss)

Smør.....	<input type="checkbox"/>	Myk margarin (eks. Soft).....	<input type="checkbox"/>
Hard margarin (eks. Melange).....	<input type="checkbox"/>	Smørblandet margarin(eks. Bremky).....	<input type="checkbox"/>
Flytende margarin.....	<input type="checkbox"/>	Soyaolje.....	<input type="checkbox"/>
Olivenolje.....	<input type="checkbox"/>	Maisolje.....	<input type="checkbox"/>

Fisk

Vi vil gjerne vite hvor ofte du pleier å spise fisk, og ber deg fylle ut spørsmålene om fiskeforbruk så godt du kan. Tilgangen på fisk kan variere gjennom året. Vær vennlig å markere i hvilke årstider du spiser de ulike fiskesla-
gene.

	aldri/ sjelden	like mye hele året	vintre	vår	sommer	høst
Torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Med tanke på de periodene av året der du spiser fisk, hvor ofte pleier du å spise følgende?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2 pr. uke	3+ pr. uke
Kokt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stekt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fisk, hvor mye spiser du vanligvis pr. gang? (1 skive/stykke = 150 gram)

Kokt fisk (skive)

☐ 1 ☐ 1,5 ☐ 2 ☐ 3+

Stekt fisk (stykke)

☐ 1 ☐ 1,5 ☐ 2 ☐ 3+

Hvor mange ganger pr. år spiser du fiskeinnmat?

(Sett ett kryss pr. linje)

	0	1-3	4-6	7-9	10+
Rogn.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskelever.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fiskelever, hvor mange spise- skjeer pleier du å spise hver gang? (Sett ett kryss)

	1	2	3-4	5-6	7+
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte bruker du følgende typer fiskemat?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Fiskekaker/pudding/boller.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plukkfisk/fiskegrateng.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fritryfisk/fiskepinner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre fiskeretter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor stor mengde pleier du vanligvis å spise av de ulike rettene? (Sett ett kryss for hver linje)

- fiskekaker/pudding/boller (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- (2 fiskeboller=1 fiskekake)
- plukkfisk, fiskegrateng (dl) ☐ 1-2 ☐ 3-4 ☐ 5+
- friturefisk, fiskepinner (stk.) ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+



Hvor ofte spiser du skalldyr (f. eks. reker, krabbe)?

(Sett ett kryss)

- ☐ Aldri/sjelden ☐ 1 pr. mnd ☐ 2-3 pr. mnd ☐ 1+ pr. uke

I tillegg til informasjon om fiskeforbruk er det viktig å få kartlagt hvilket tilbehør som blir servert til fisk.

Hvor ofte bruker du følgende til fisk? (Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Smeltet eller fast margarin/fett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seterrømme (35%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettømme (20%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus med fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus uten fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For de ulike typene tilbehør du bruker til fisk, vær vennlig å kryss av for hvor mye du vanligvis pleier spise.

- smeltet/fast fett (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- seterrømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- lettømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- saus med fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+
- saus uten fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+



Andre matvarer

Hvor ofte spiser du reinkjøtt?

- ☐ Aldri/sjelden ☐ 1 pr. mnd. ☐ 2-3 pr. mnd. ☐ 1 pr. uke
- ☐ 2-3 pr. uke ☐ 4+ pr. uke



Hvor ofte spiser du følgende kjøtt- og fjærkreterter?

(Sett ett kryss for hver rett)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Steik (okse, svin, får)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koteletter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttkaker, karbonader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pølser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gryterett, lapskaus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pizza med kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kylling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre kjøtetter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser følgende retter, oppgi mengden du vanligvis spiser: (Sett ett kryss for hver linje)

- steik (skiver) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- koteletter (stk.) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- kjøttkaker, karbonader (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- pølser (stk. à 150g) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- gryterett, lapskaus (dl) ☐ 1-2 ☐ 3 ☐ 4 ☐ 5+
- pizza m/kjøtt (stykket à 100 g) ☐ 1 ☐ 2 ☐ 3 ☐ 4+

Hvor mange egg spiser du vanligvis i løpet av en uke? (stekte, kokte, eggerøre, omelett) (Sett ett kryss)

- ☐ 0 ☐ 1 ☐ 2 ☐ 3-4
- ☐ 5-6 ☐ 7+



Vi ber deg fylle ut hovedrettene til middag en gang til som en oppsummering. Kryss av i den ruten som passer

hvor ofte du i gjennomsnitt i løpet av siste år har spist slik mat til middag

	5+ pr.uke	4 pr.uke	3 pr.uke	2 pr.uke	1 pr.uke	2-3 pr.mnd.	1 pr.mnd.	nesten aldri
Rent kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oppmalt kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fet fisk (makrell, laks o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mager fisk (torsk o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskemat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du iskrem? (til dessert, krone-is osv.)

Sett et kryss for hvor ofte du spiser iskrem om sommeren, og et kryss for resten av året

	aldri/ sjelden	1-3 pr.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
-Om sommeren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye is spiser du vanligvis pr. gang? (Sett ett kryss)

- ☐ 1 dl ☐ 2 dl ☐ 3 dl ☐ 4+ dl

Hvor ofte spiser du bakevarer som boller kaker, wienerbrød eller småkaker (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Gjærbakst (boller)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wienerbrød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pannekaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vafler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Småkaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Hvor ofte spiser du dessert? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Pudding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokolade/karamell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riskrem, fromasj	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kompott, fruktgrøt, hermetisk frukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du sjokolade? (Sett ett kryss)

☐ aldri/sjelden ☐ 1-3 pr. mnd ☐ 1 pr. uke
☐ 2-3 pr. uke ☐ 4-6 pr. uke ☐ 1+ pr. dag

Dersom du spiser sjokolade, hvor mye pleier du vanligvis å spise hver gang? Tenk deg størrelsen på en Kvikk-Lunsj sjokolade, og oppgi hvor mye du spiser i forhold til den.

☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 1,5 ☐ 2+

Hvor ofte spiser du salt snacks? (Sett ett kryss)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Potetchips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanøtter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tilberedningsmåte

Har du mikrobølgeovn? ☐ Ja ☐ Nei

Hvis Ja; hvor mange ganger pr. uke bruker du mikrobølgeovnen til

middagslaging (ant. ganger)
 annet (ant. ganger)

Hvilken farge foretrekker du på stekeskorpen?

☐ Lys brun ☐ Middels brun ☐ Mørk brun

Hvor ofte spiser du stekt eller grillet mat?

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Mørkt kjøtt (biff o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lyst kjøtt (kylling)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oppmalt kjøtt (kjøttkaker o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bacon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du stekefettet eller sjen etter steking?

☐ nei, aldri ☐ av og til ☐ som oftest ☐ ja, alltid

Tran og fiskeoljekapsler

Bruker du tran (flytende)? ☐ Ja ☐ Nei

Hvis ja; hvor ofte tar du tran?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye tran pleier du å ta hver gang?

☐ 1 ts. ☐ 1/2 ss. ☐ 1+ ss.

Bruker du tranpiller/kapsler? ☐ Ja ☐ Nei

Hvis ja; hvor ofte tar du tranpiller/kapsler?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvilken type tranpiller/kapsler bruker du vanligvis, og hvor mange pleier du å ta hver gang?

Navn ant.

Bruker du fiskeoljekapsler? (omega-3) Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du fiskeoljekapsler?

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvilken type fiskeoljekapsler bruker du vanligvis, og hvor mange pleier du å ta hver gang?

Navn ant.

Kosttilskudd og alternativ medisin

Hvor ofte bruker du følgende typer tilskudd til kostholdet? (Sett ett kryss pr. linje)

Navn på vitamin/mineraltilskudd:	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du naturpreparater? ☐ Ja ☐ Nei

Hvis ja; Når brukte du det sist? År

Bruker du soyapreparater? ☐ Ja ☐ Nei

Hvis ja; Når brukte du det sist? År

Har du brukt homeopatiske midler? ☐ Ja ☐ Nei

Hvis ja; Når brukte du det sist? År

Alkohol

Er du totalavholdskvinne? ☐ Ja ☐ Nei

Hvis Nei, hvor ofte og hvor mye drakk du i gjennomsnitt siste året? (Sett ett kryss for hver linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. uke	1 pr. uke	2-4 pr. uke	5-6 pr. uke	1+ pr. dag
Øl (1/2 l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vin (glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brennevin (drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sosiale forhold

Er du: (Sett ett kryss)

- ☐ gift ☐ samboer ☐ ugift ☐ skilt
☐ enke

Hvor mange personer er det i ditt hushold?

Hvor mange inntekter er det i ditt hushold?

Hvor mange års utdanning på videregående nivå har du? (gymnas, husmor/yrkesskole etc.)

Hvor mange års utdanning på høyskole/ universitetsnivå har du?

Hvor høy er bruttoinntekten i husholdet pr. år? **+**

- ☐ under 150.000 kr. ☐ 151.000-300.000 kr.
☐ 301.000-450.000 kr. ☐ 451.000-600.000 kr.
☐ 601.000-750.000 kr. ☐ over 750.000 kr.

Hva er din arbeidssituasjon? (sett kryss)

- ☐ Arbeider heltid
☐ Arbeider deltid
☐ Pensjonist
☐ Hjemmearbeidende
☐ Under utdanning
☐ Uføretrygdet
☐ Under attføring
☐ Arbeidssøkende

Hvordan var de økonomiske forhold i oppveksten?

- ☐ Meget gode
☐ Gode
☐ Dårlige
☐ Meget dårlige **+**

Solvaner

Får du fregner når du soler deg? ☐ Ja ☐ Nei

Hvor mange små, regelmessige føflekker har du sammenlagt på begge armene (fra fingrene til armhulene)?

- ☐ 0 ☐ 1-10 ☐ 11-50 ☐ 50+

For å kunne studere effekten av soling på risiko for hudkreft ber vi deg gi opplysninger om hudfarge

Sett ett kryss på den fargen som best passer din hudfarge (uten soling)

1	2	3	4	5	6	7	8	9	10

Hvor ofte dusjer eller bader du?

- | | mer enn
1 g. dagl. | 1 g.
dagl. | 4-6 g.
pr. uke | 2-3 g.
pr. uke | 1 g.
pr. | 2-3 g.
pr. uke | sjel-
den/
aldri |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Med såpe/shampo | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Uten såpe/shampo | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange ganger pr. år er du blitt forbrent av solen slik at du har fått svie og blemmer med avflassing etterpå?

- | | aldri | høyst 1 g.
pr. år | 2-3 g.
pr. år | 4-5 g.
pr. år | 6 el.
fl. g. |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange uker solte du deg pr. år i syden?

- | | aldri | 1 uke | 2-3
uker | 4-5
uker | 7+
uker |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange uker pr. år solte du deg i Norge eller utenfor syden?

- | | aldri | 1 uke | 2-3
uker | 4-5
uker | 7+
uker |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Når bruker du krem med solfaktor? (sett evt. flere kryss):

- ☐ i påsken ☐ i Norge eller utenfor syden ☐ solferie i syden
☐ aldri

Hvilken solfaktor bruker du i disse periodene?

- | | påsken | i Norge eller
utenfor syden | solferie i syden |
|-----------------|----------------------|--------------------------------|----------------------|
| i dag | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| for 10 år siden | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Hvilke solkremer bruker du? Angi faktor hvis du husker.

- | | ja | faktor | ja | faktor |
|---------------|--------------------------|----------------------|--------------------------|----------------------|
| Piz Buin | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Ambre Solairè | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| HTH | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Nivea | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Annex | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Cosmica | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Natusan | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Delial | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Vichy | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |

Hvor ofte har du solt deg i solarium?

- | | Aldri | sjelden | 1 g.
pr. mnd. | 2 g.
pr. mnd. | 3-4 g.
pr. mnd. | ofte
enn
1 g. pr. uke |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Til slutt vil vi spørre deg om ditt samtykke til å kontakte deg på nytt pr. post. Vi vil hente adressen fra det sentrale personregister.

- Ja ☐ Nei ☐

Takk for at du ville delta i undersøkelsen

Undersøkelsen “KVINNER OG KREFT”



Vi minner om at vi nylig har sendt deg et spørreskjema som vi håper du tar deg tid til å svare på. Ditt svar er et viktig bidrag for oss, fordi slutningene vi kan trekke ut fra undersøkelsen vil være mer pålitelige dersom mange har svart.

Vi ønsker at resultatene fra undersøkelsen skal komme deg og andre kvinner til gode. Du velger likevel selv om du vil delta i undersøkelsen.

Hvis du nylig har returnert skjemaet, ber vi deg se bort fra denne henvendelsen. Vi takker for verdifull bistand.

Alle opplysninger fra undersøkelsen behandles konfidensielt og etter Datatilsynets regler.

Har du spørsmål om undersøkelsen, eller trenger du et nytt spørreskjema, kan du kontakte Institutt for samfunnsmedisin, Universitetet i Tromsø, 9037 Tromsø, tlf. 77 64 48 16.

Med vennlig hilsen

*Eiliv Lund
professor dr.med.*



UNIVERSITETET I TROMSØ
INSTITUTT FOR SAMFUNNSMEDISIN

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APPENDIX B

Original printed material for the retest in test-retest study (2002): letter of introduction, photo booklet, questionnaire, and reminder card.

(Paper I, II, and III)



KVINNER OG KREFT

Orientering om undersøkelsen

Du samtykket vinteren 2002 til å fylle ut et åtte siders spørreskjema som du mottok i posten.

Vi retter nå en ny forespørsel til deg om du nok en gang vil besvare det samme spørreskjema. Begrunnelsen for å kontakte deg på nytt er at vi ønsker å studere i hvilken grad svarene endrer seg over tid og med årstidene.

Undersøkelsen er tilrådd av Regional komite for medisinsk forskningsetikk i Nord-Norge. Adressen din henter vi fra det sentrale personregister ved hjelp av Statistisk Sentralbyrå. Som forrige gang inneholder spørreskjemaet kun løpenummer uten annen identifikasjon, for derved å gi dine opplysninger et bedre personvern.

Det er frivillig å være med i undersøkelsen. Du kan senere trekke deg uten begrunnelse og uten at det vil få noen konsekvenser for deg. Opplysninger du har gitt kan du be om å få slettet.

Vi vil be deg om å besvare det vedlagte spørreskjemaet så riktig som mulig. Dersom ingen av de oppgitte svaralternativ dekker din situasjon, sett kryss for det alternativet som ligger nærmest. Gi eventuelt merknader eller tilleggsopplysninger i skjemaet. Vi spør også alle som deltar om tillatelse til fornyet kontakt om noen år i form av et liknende spørreskjema.

For spørsmål om bruk av hormoner i overgangsalderen finner du bilder i denne brosjyren som skal være et hjelpemiddel (brosjyren skal ikke returneres). Spørreskjemaet sendes tilbake i vedlagte konvolutt som vi betaler svarporto for.

Med hilsen

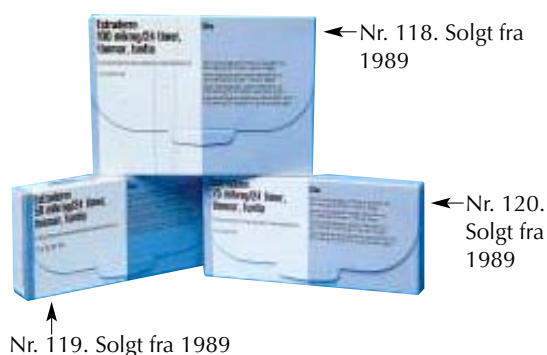
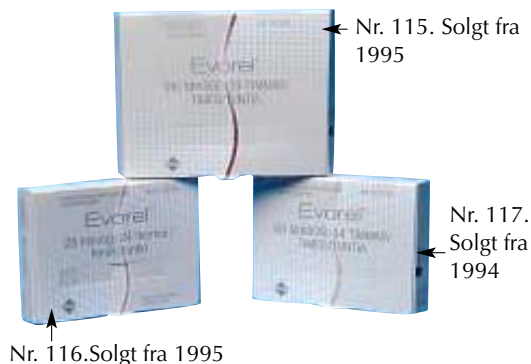
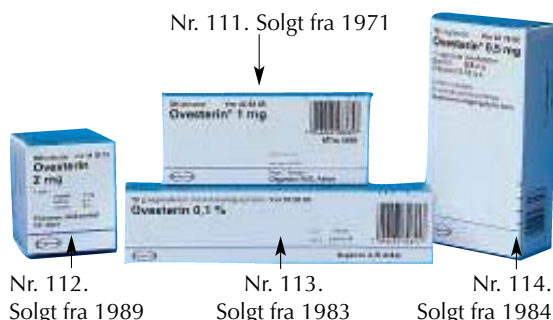
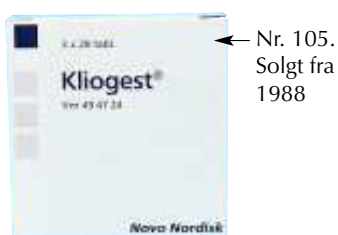
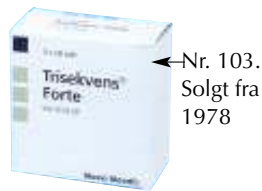
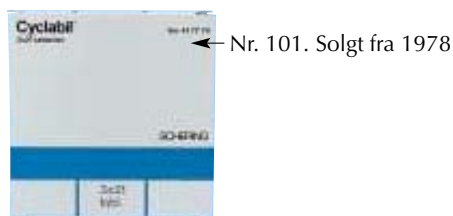
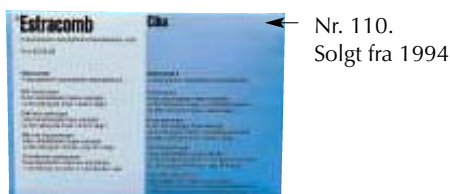
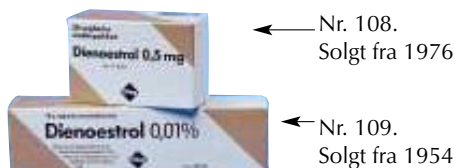
Eiliv Lund
professor dr.med.

Bente A. Augdal
prosjektmedarbeider

Bruk av østrogener i og etter overgangsalderen

Denne brosjyren er et hjelpemiddel for å huske riktig navn på de hormontabletter/plaster/salver/stikkpiller du har brukt. Under bildene er det oppgitt hvilke år disse var i salg. For noen hormontabletter/plaster finnes det esker med samme utseende, men med ulik styrke av hormonene. Vi ber deg tenke nøye gjennom navnet på de hormon-tabletter/plaster/salver/stikkpiller du har brukt. Eldre avregistrerte preparater er ikke gjengitt med bilder, det gjelder:

- Nr. 201 **Dietylstilbøstrol** 1 mg stikkpiller til skjeden (1976-92)
- Nr. 202 **Dietylstilbøstrol** 0,1 mg tabletter (1980-85)
- Nr. 203 **Dietylstilbøstrol** 0,5 mg stikkpiller (1976-81)
- Nr. 204 **Primodos** tabletter (1961-74)
- Nr. 205 **Østriol** 1 mg tabletter (1975-95)
- Nr. 206 **Østriol** 0,25 mg tabletter (1961-83)



Nr. 121
Solgt fra
1996.



←Nr. 123
Solgt fra
1996.

Nr. 126 →
Solgt fra
1997.



Nr. 122
Solgt fra
1996.



←Nr. 124
Solgt fra
1996.



Nr. 125
Solgt fra 1996.



Nr. 127 →
Solgt fra
1997.



Nr. 128
Livial 2,5 mg
Solgt fra
1999 →



↑Nr. 129
Crinone
Solgt fra
2000



Nr. 130
Indivina 1mg/2,5 mg
Solgt fra
2001

↑Nr. 132
Indivina 2mg/5 mg
Solgt fra 2001

←Nr. 131
Indivina 1mg/5 mg
Solgt fra 2001



Nr. 133 Diviseq
Solgt fra 2001

P-pille merker i salg 1998-2002

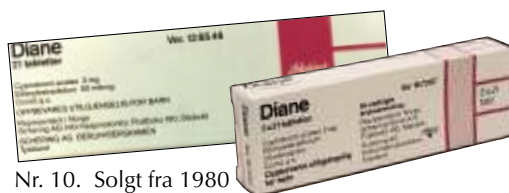
Denne brosjyren er et hjelpemiddel for å huske riktig navn på de p-piller du har brukt de siste årene. Bildene er ordnet alfabetisk. Under bildene er det oppgitt hvilke år p-pillene var i salg.

For noen p-piller finnes det esker med samme utseende, men med ulik størrelse, avhengig av om de inneholder p-piller for en eller flere måneder.

Vi ber deg tenke nøye gjennom navnet på de p-pillene du har brukt.



Nr. 7. Solgt fra 1971



Nr. 10. Solgt fra 1980



Nr. 13. Solgt fra 1978



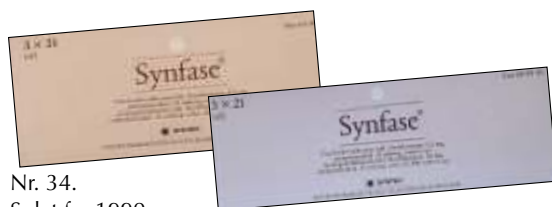
Nr. 11. Solgt fra 1969



Nr. 12. Solgt fra 1973



Nr. 17. Solgt fra 1985



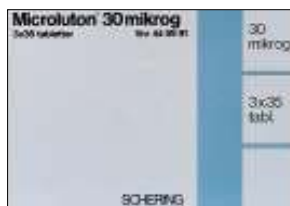
Nr. 34.
Solgt fra 1990



Nr. 18. Solgt fra 1975



Nr. 35.
Solgt fra 1981



Nr. 19.
Solgt fra 1973



Nr. 37
Solgt fra 2001



Nr. 36.
Solgt fra 1981

TAKK FOR INNSATSEN!

KVINNER OG KREFT

KONFIDENSIELT

Hvis du samtykker i å være med, sett kryss for JA i ruten ved siden av. Dersom du ikke ønsker å delta kan du unngå puring ved å sette kryss for NEI og returnere skjemaet i vedlagte svarkonvolutt.

Hvis du vil være med, ber vi deg fylle ut spørreskjemaet så nøye som mulig, se orienteringen på brosjyren for nærmere opplysninger.

Skjemaet skal leses optisk. Vennligst bruk blå eller sort penn. Du kan ikke bruke komma, bruk blokkbokstaver.

Med vennlig hilsen

Eiliv Lund

Professor dr. med

Jeg samtykker i å delta i JA ☐
spørreskjemaundersøkelsen NEI ☐

Menstruasjonsforhold

Er menstruasjonen din;

- ☐ Regelmessig (naturlig)
☐ Uregelmessig
☐ Uteblitt pga. legemiddelbruk, sykdom, trening, annet
☐ Sluttet/stoppet

Hvis du ikke har menstruasjon;

- ☐ har den stoppet av seg selv?
☐ operert vekk begge eggstokkene?
☐ operert vekk livmoren?
☐ annet, angi

Alder da menstruasjonen opphørte?

Graviditeter

Har du noen gang vært gravid? Ja ☐ Nei ☐

Hvis ja; hvor mange barn har du født (ta med dødfødte og barn som er døde senere i livet)?

Hormonspiral

Har du noen gang brukt hormonspiral (Levonova)? Ja ☐ Nei ☐

Hvis ja; hvor mange hele år har du brukt hormonspiral i alt?

Hvor gammel var du første gang du fikk innsatt hormonspiral?

Bruker du hormonspiral nå? Ja ☐ Nei ☐

Bruk av hormonpreparater med østrogen i overgangsalderen

Har du noen gang brukt østrogen-tabletter/plaster? Ja ☐ Nei ☐

Hvis ja; hvor mange år har du brukt østrogen-tabletter/plaster i alt?

Hvor gammel var du første gang du brukte østrogen-tabletter/plaster?

Hva er den viktigste grunnen til at du begynte å bruke østrogen-tabletter/plaster?

- Lindre plager i overgangsalderen (hetetokter, uopplagthet, underlivsplager mm) ☐
 Forebygge benskjørhet (osteoporose) ☐
 Forebygge hjerte-/karsykdommer ☐
 Annet ☐

Bruker du tabletter/plaster nå? Ja ☐ Nei ☐

Har østrogenpreparatene gitt deg bivirkninger? Ja ☐ Nei ☐

Hvis ja; kryss av for hvilke bivirkninger:

- Uregelmessige blødninger ☐
 Brystspenning ☐
 Kvalme/magesmerter ☐
 Hodepine ☐
 Vektøkning ☐
 Annet ☐

Førte de ovennevnte bivirkninger til at du forandret
østrogenbehandlingen din? _____ Ja ☐ Nei ☐

Hvis ja;

☐ Skiftet østrogenpreparat

☐ Sluttet

☐ Annet, angi _____



UTFYLLENDE SPØRSMÅL TIL ALLE SOM ETTER 1996 HAR BRUKT ELLER BRUKER PREPARATER MED ØSTROGEN I FORM AV TABLETTER ELLER PLASTER.

For hver periode med sammenhengende bruk av samme østro-
genpreparat håper vi du kan si oss hvor gammel du var da du
startet, hvor lenge du brukte det samme østrogenpreparatet, og
navnet på dette. Dersom du har hatt opphold eller skiftet merke,
skal du besvare spørsmålene for en ny periode. Dersom du ikke
husker navnet på østrogenpreparatet sett «usikker». For å hjel-
pe deg til å huske navnet på østrogenpreparatene ber vi deg
bruke den vedlagte brosjyren som viser bilder av østrogenpre-
parater som har vært solgt i Norge. Vennligst oppgi også num-
mer på østrogen- tabletten/plasteret som står i brosjyren.

Årstall	Antall mnd. med samme preparat	Østrogentabletter/plaster											
		Navn										Nr.	
1997	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1998	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1999	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2002	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sykdom

Har du eller har du hatt noen av følgende sykdommer?

	Ja	Nei	Hvis ja: Alder ved start
Høyt blodtrykk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjertesvikt/hjertekrampe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Årebetennelse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blodpropp i legg eller lår	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjerteinfarkt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migrene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epilepsi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sukkersyke (diabetes)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Endometriose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hypothyreose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depresjon (oppsoekt lege)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rakitt (Engelsk syke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slitasjegikt (artrose) i hofte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Østrogenpreparat til lokal bruk i skjeden

Har du noen gang brukt østrogen-
krem/stikkpille? _____ Ja ☐ Nei ☐

Hvis ja;

Bruker du krem/stikkpille nå? _____ Ja ☐ Nei ☐

Selvopplevd helse

Oppfatter du din egen helse som; (Sett ett kryss)

☐ Meget god

☐ God

☐ Dårlig

☐ Meget dårlig

For følgende tilstander kryss av for hvilket år tilstanden
oppsto eller angi årstall for perioden før 1997.

	før 97	97	98	99	00	01	02
Muskelsmerter (myalgi)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fibromyalgi/Fibrositt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kronisk tretthetssyndrom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryggsmerter ukjent årsak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nakkeslengskade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporose/(b.skjørhet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Brudd

Underarmen (håndledd) ☐

Lårhalsen ☐

Ryggsvirvel (kompresjon) ☐

Røykevaner

Har du i løpet av livet røykt mer enn
100 sigaretter til sammen? _____ Ja ☐ Nei ☐

Hvis ja, hvor mange sigaretter røykte du i gjennomsnitt
pr. dag i perioden 1997-2001?

Årstall	0	1-4	5-9	10-14	15-19	20-24	25+
1997-2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Røyker du daglig nå? _____ Ja ☐ Nei ☐

Hvis nei, hvor gammel var du da du sluttet
å røyke? _____

Hvor lenge oppholder du deg daglig i rom
med tobakksrøyk?

På arbeid (ant. hele timer) ☐

Hjemme (ant. hele timer) ☐

Røykte noen av de voksne hjemme
da du var barn? _____ Ja ☐ Nei ☐

Hvis ja,

☐ Bare mor

☐ Bare far

☐ Begge foreldre.

Kvinner og Kreft 34 validering, Vår 2002

2

Brystkreft i nærmeste familie

Har noen nære slektninger hatt brystkreft? **+**

	Ja	Nei	Vet ikke	Alder ved start
Datter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Mor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Søster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

Hvor mange helsøsken har du?

(oppgi antall)

Hvilket nummer i søskenflokken er du?

Mammografiundersøkelse

Har du vært til undersøkelse av brystene med mammografi ☐ Ja ☐ Nei

Hvis ja,

Hvor gammel var du første gangen? (hele år)

Hvor mange ganger har du vært undersøkt?

-etter invitasjon fra Mammografiprogrammet

-etter henvisning fra lege

-uten henvisning fra lege



Fysisk aktivitet

Er det spesielle helsemessige forhold som har påvirket ditt normale aktivitetsnivå det siste året?

Hvis ja, årsak:

Varighet i hele måneder

Arbeid hjemme og ute

Hvor mange hele timer pr. uke bruker du i gjennomsnitt på:

Matlaging

Rengjøring

Klesvask

Innkjøp

Hvor mange hele timer pr. dag bruker du på arbeidsplassen i gjennomsnitt til:

Sitte

Stå

Gå

Løfte

Tunge løft/pleie

Hvor mange trapper (hele etasjer) går du i gjennomsnitt pr. dag.

Kryss ja eller nei for hver av følgende aktiviteter du deltar i. Hvis ja, oppgi hvor mange hele timer pr. uke du bruker i gjennomsnitt til hver av aktivitetene. Eks. trener du 1 time = 1

Fritidsaktivitet

	Ja	Nei	Vinter	Vår	Sommer	Host
Eksempel: Jogging <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> 1	<input type="text"/> 1	<input type="text"/> 2	<input type="text"/> 1, 2
Rask gange (f.eks. tur) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rolig gange <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sykling <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Jogging <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Svømming <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Gymnastikk/trainingscenter <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Ballspill <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Konkurransedrett <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dans <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
TV/data (fritiden) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Lesing <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Håndarbeid/hobby <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kino/konsert/teater <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Forening/kurs/bingo <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Spise/sitte stille <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bilbruk (fritid/helger) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Snørydding <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hagearbeid <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dusj/bad/egenpleie <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Omsorg (barnepass/pleie) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Annet <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mye sover du i gjennomsnitt pr. døgn? **+**

	Vinter	Vår	Sommer	Host
Nattesøvn (timer) <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Middagshvil (min.) <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mange timer pr. uke bruker du i gjennomsnitt til og fra arbeid?

	Vinter	Vår	Sommer	Host
+	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Gå <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sykle <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bil <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Offentlig kommunikasjon <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Vi ber deg angi din fysiske aktivitet etter en skala fra svært lite til svært mye. Skalaen nedenfor går fra 1-10. Med fysisk aktivitet mener vi både arbeid i hjemmet og i yrkeslivet, samt trening og annen fysisk aktivitet som tur-gåing o.l. Sett kryss over det tallet som best angir ditt nivå av fysisk aktivitet.

Alder	Svært lite										Svært mye									
30 år	1	2	3	4	5	6	7	8	9	10										
I dag	1	2	3	4	5	6	7	8	9	10										

Høyde og vekt

Hvor høy er du? (i hele cm.)

Hvor mye veier du i dag? (i hele kg.)

Kosthold

Påvirker noen av følgende forhold kostholdet ditt?
(sett gjerne flere kryss)

☐ Er vegetarianer/veganer
 ☐ Har anoreksi

☐ Spiser ikke norsk kost til daglig
 ☐ Har bulimi

☐ Har allergi/intoleranse
 ☐ Prøver å gå ned i vekt

☐ Kronisk sykdom
 ☐

Vi er interessert i å få kjennskap til hvordan kostholdet ditt er vanligvis. Kryss av for hvert spørsmål om hvor ofte du i gjennomsnitt siste året har brukt den aktuelle matvaren, og hvor mye du pleier å spise/drikke hver gang.

Hvor mange glass melk drikker du vanligvis av hver type? (Sett ett kryss pr. linje)

	aldri/sjelden	1-4 pr. uke	5-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Helmelk (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettmelk (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ekstra lettmelk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skummet (søt, sur)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange kopper kaffe drikker du vanligvis av hver sort? (Sett ett kryss for hver linje)

	aldri/sjelden	1-6 pr. uke	1 pr. dag	2-3 pr. dag	4-5 pr. dag	6-7 pr. dag	8+ pr. dag
Kokekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traktekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulverkaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange glass appelsinjuice, saft og brus drikker du vanligvis? (Sett ett kryss for hver linje)

	aldri/sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Appelsinjuice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus med sukker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus sukkerfri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du yoghurt (1 beger)? (Sett ett kryss)

☐ Aldri/sjelden
 ☐ 2-3 pr. uke

☐ 1 pr. uke
 ☐ 4+ pr. uke

Hvor ofte har du i gjennomsnitt siste året spist kornblanding, havregryn eller müsli? (Sett ett kryss)

☐ Aldri/sjelden
 ☐ 4-6 pr. uke

☐ 1-3 pr. uke
 ☐ 1 pr. dag

Hvor mange skiver brød/rundstykker og knekkebrød/skonrokker spiser du vanligvis?

(1/2 rundstykke = 1 brødskive) (Sett ett kryss for hver linje)

	aldri/sjelden	1-4 pr. uke	5-7 pr. uke	2-3 pr. dag	4-5 pr. dag	6+ pr. dag
Grovt brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kneipp/halvfint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fint brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knekkebrød o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Nedenfor er det spørsmål om bruk av ulike påleggstyper. Vi spør om hvor mange brødskiver med det aktuelle pålegget du pleier å spise. Dersom du også bruker matvarene i andre sammenhenger enn til brød (f. eks. til vafler, frokostblandinger, grøt), ber vi om at du tar med dette når du besvarer spørsmålene.

På hvor mange brødskiver bruker du? (Sett ett kryss pr. linje)

	0 pr. uke	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Syltetøy og annet søtt pålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brun ost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brunost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttpålegg, Leverpostei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

På hvor mange brødskiver pr. uke har du i gjennomsnitt siste året spist? (Sett ett kryss pr. linje)

	0 pr. uke	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7-9 pr. uke	10+ pr. uke
Makrell i tomat, røkt makrell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaviar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet fiskepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hva slags fett bruker du vanligvis på brødet?
(Sett gjerne flere kryss)

☐ Bruker ikke fett på brødet
 ☐ Smør

☐ Hard margarin (f. eks. Per, Melange)
 ☐ Myk margarin (f. eks. Soft, Vita og Solsikke)

☐ Smørblandet margarin (f. eks. Bremyk)
 ☐ Brelett

☐ Lettmargarin (f. eks. Soft light, Letta)
 ☐ Middels lett margarin (f. eks. Olivero, Omega)

Dersom du bruker fett på brødet, hvor tykt lag pleier du smøre på? (En kuvertpakke med margarin veier 12 gram).
(Sett ett kryss)

☐ Skrapet (3 g)
 ☐ Godt dekket (8 g)

☐ Tynt lag (5 g)
 ☐ Tykt lag (12 g)

Hvor ofte spiser du frukt? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2-4 pr.uke	5-6 pr.uke	1 pr.dag	2+ pr. dag
Epler/pærer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appelsiner o.l.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bananer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen frukt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du ulike typer grønnsaker?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2 pr.uke	3 pr.uke	4-5 pr.uke	6-7 pr. uke
Gulrøtter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kålrot.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brokkoli/blomkål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blandet salat.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grønnsakblan- ding (frossen).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre grøn- saker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For de grønnsakene du spiser, kryss av for hvor mye du spiser hver gang. (Sett ett kryss for hver sort)

- gulrøtter	<input type="checkbox"/> 1/2 stk.	<input type="checkbox"/> 1 stk.	<input type="checkbox"/> 1 1/2 stk.	<input type="checkbox"/> 2+ stk.
- kål	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- kålrot	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- brokkoli/blomkål	<input type="checkbox"/> 1-2 buketter	<input type="checkbox"/> 3-4 buketter	<input type="checkbox"/> 5+ buketter	
- blandet salat	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3 dl	<input type="checkbox"/> 4+ dl
- grønnsakblanding	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3+ dl

Hvor mange poteter spiser du vanligvis (kokte, stekte, mos)? (Sett ett kryss)

☐ Spiser ikke/spiser sjelden poteter

☐ 1-4 pr. uke ☐ 5-6 pr. uke ☐ 1 pr. dag ☐ 2 pr. dag

☐ 3 pr. dag ☐ 4+ pr. dag

Hvor ofte bruker du ris og spaghetti/makaroni ?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2 pr. uke	3+ pr. uke
Ris.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spagetti, makaroni.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du risengrynsgrøt? (Sett ett kryss)

Aldri/sjelden..... ☐ 1 pr. mnd. ☐

2-3 pr. mnd. ☐ 1+ pr. uke ☐

Hva slags fett blir vanligvis brukt til matlaging i din husholdning? (Sett gjerne flere kryss)

Smør.....	<input type="checkbox"/>	Myk margarin (eks. Soft).....	<input type="checkbox"/>
Hard margarin (eks. Melange).....	<input type="checkbox"/>	Smørblandet margarin(eks. Bremky).....	<input type="checkbox"/>
Flytende margarin.....	<input type="checkbox"/>	Soyaolje.....	<input type="checkbox"/>
Olivenolje.....	<input type="checkbox"/>	Maisolje.....	<input type="checkbox"/>

Fisk

Vi vil gjerne vite hvor ofte du pleier å spise fisk, og ber deg fylle ut spørsmålene om fiskeforbruk så godt du kan. Tilgangen på fisk kan variere gjennom året. Vær vennlig å markere i hvilke årstider du spiser de ulike fiskesla-
gene.

	aldri/ sjelden	like mye hele året	vintre	vår	sommer	høst
Torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Med tanke på de periodene av året der du spiser fisk, hvor ofte pleier du å spise følgende?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2 pr. uke	3+ pr. uke
Kokt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stekt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fisk, hvor mye spiser du vanligvis pr. gang? (1 skive/stykke = 150 gram)

Kokt fisk (skive)

☐ 1 ☐ 1,5 ☐ 2 ☐ 3+

Stekt fisk (stykke)

☐ 1 ☐ 1,5 ☐ 2 ☐ 3+

Hvor mange ganger pr. år spiser du fiskeinnmat?

(Sett ett kryss pr. linje)

	0	1-3	4-6	7-9	10+
Rogn.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskelever.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fiskelever, hvor mange spise- skjeer pleier du å spise hver gang? (Sett ett kryss)

	1	2	3-4	5-6	7+
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte bruker du følgende typer fiskemat?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Fiskekaker/pudding/boller.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plukkfisk/fiskegrateng.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fritryfisk/fiskepinner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre fiskeretter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor stor mengde pleier du vanligvis å spise av de ulike rettene? (Sett ett kryss for hver linje)

- fiskekaker/pudding/boller (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- (2 fiskeboller=1 fiskekake)
- plukkfisk, fiskegrateng (dl) ☐ 1-2 ☐ 3-4 ☐ 5+
- fritryfisk, fiskepinner (stk.) ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+



Hvor ofte spiser du skalldyr (f. eks. reker, krabbe)?

(Sett ett kryss)

- ☐ Aldri/sjelden ☐ 1 pr. mnd ☐ 2-3 pr. mnd ☐ 1+ pr. uke

I tillegg til informasjon om fiskeforbruk er det viktig å få kartlagt hvilket tilbehør som blir servert til fisk.

Hvor ofte bruker du følgende til fisk? (Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Smeltet eller fast margarin/fett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seterrømme (35%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettømme (20%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus med fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus uten fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For de ulike typene tilbehør du bruker til fisk, vær vennlig å kryss av for hvor mye du vanligvis pleier spise.

- smeltet/fast fett (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- seterrømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- lettømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- saus med fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+
- saus uten fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+



Andre matvarer

Hvor ofte spiser du reinkjøtt?

- ☐ Aldri/sjelden ☐ 1 pr. mnd. ☐ 2-3 pr. mnd. ☐ 1 pr. uke
- ☐ 2-3 pr. uke ☐ 4+ pr. uke



Hvor ofte spiser du følgende kjøtt- og fjærkreterter?

(Sett ett kryss for hver rett)

	aldri/ sjelden	1 pr.mnd.	2-3 pr.mnd.	1 pr.uke	2+ pr.uke
Steik (okse, svin, får)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koteletter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttkaker, karbonader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pølser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gryterett, lapskaus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pizza med kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kylling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre kjøtetter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser følgende retter, oppgi mengden du vanligvis spiser: (Sett ett kryss for hver linje)

- steik (skiver) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- koteletter (stk.) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- kjøttkaker, karbonader (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- pølser (stk. à 150g) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- gryterett, lapskaus (dl) ☐ 1-2 ☐ 3 ☐ 4 ☐ 5+
- pizza m/kjøtt (stykke à 100 g) ☐ 1 ☐ 2 ☐ 3 ☐ 4+

Hvor mange egg spiser du vanligvis i løpet av en uke? (stekte, kokte, eggerøre, omelett) (Sett ett kryss)

- ☐ 0 ☐ 1 ☐ 2 ☐ 3-4
- ☐ 5-6 ☐ 7+



Vi ber deg fylle ut hovedrettene til middag en gang til som en oppsummering. Kryss av i den ruten som passer

hvor ofte du i gjennomsnitt i løpet av siste år har spist slik mat til middag

	5+ pr.uke	4 pr.uke	3 pr.uke	2 pr.uke	1 pr.uke	2-3 pr.mnd.	1 pr.mnd.	nesten aldri
Rent kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oppmalt kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fet fisk (makrell, laks o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mager fisk (torsk o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskemat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du iskrem? (til dessert, krone-is osv.)

Sett et kryss for hvor ofte du spiser iskrem om sommeren, og et kryss for resten av året)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
-Om sommeren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye is spiser du vanligvis pr. gang? (Sett ett kryss)

- ☐ 1dl ☐ 2 dl ☐ 3 dl ☐ 4+ dl

Hvor ofte spiser du bakevarer som boller kaker, wienerbrød eller småkaker (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Gjærbakst (boller)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wienerbrød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pannekaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vafler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Småkaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Hvor ofte spiser du dessert? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Pudding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokolade/karamell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riskrem, fromasj	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kompott, fruktgrøt, hermetisk frukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du sjokolade? (Sett ett kryss)

☐ aldri/sjelden ☐ 1-3 pr. mnd ☐ 1 pr. uke
☐ 2-3 pr. uke ☐ 4-6 pr. uke ☐ 1+ pr. dag

Dersom du spiser sjokolade, hvor mye pleier du vanligvis å spise hver gang? Tenk deg størrelsen på en Kvikk-Lunsj sjokolade, og oppgi hvor mye du spiser i forhold til den.

☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 1,5 ☐ 2+

Hvor ofte spiser du salt snacks? (Sett ett kryss)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Potetchips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanøtter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tilberedningsmåte

Har du mikrobølgeovn? Ja ☐ Nei ☐

Hvis Ja; hvor mange ganger pr. uke bruker du mikrobølgeovnen til

middagslaging (ant. ganger)
 annet (ant. ganger)

Hvilken farge foretrekker du på stekeskorpen?

☐ Lys brun ☐ Middels brun ☐ Mørk brun

Hvor ofte spiser du stekt eller grillet mat?

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Mørkt kjøtt (biff o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lyst kjøtt (kylling)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oppmalt kjøtt (kjøttkaker o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bacon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du stekefettet eller sjen etter steking?

☐ nei, aldri ☐ av og til ☐ som oftest ☐ ja, alltid

Tran og fiskeoljekapsler

Bruker du tran (flytende)? Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du tran?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye tran pleier du å ta hver gang?

☐ 1 ts. ☐ 1/2 ss. ☐ 1+ ss.

Bruker du tranpiller/kapsler? Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du tranpiller/kapsler?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvilken type tranpiller/kapsler bruker du vanligvis, og hvor mange pleier du å ta hver gang?

Navn ant.

Bruker du fiskeoljekapsler? (omega-3) Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du fiskeoljekapsler?

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvilken type fiskeoljekapsler bruker du vanligvis, og hvor mange pleier du å ta hver gang?

Navn ant.

Kosttilskudd og alternativ medisin

Hvor ofte bruker du følgende typer tilskudd til kostholdet? (Sett ett kryss pr. linje)

Navn på vitamin/mineraltilskudd:	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du naturpreparater? Ja ☐ Nei ☐

Hvis ja; Når brukte du det sist? År

Bruker du soyapreparater? Ja ☐ Nei ☐

Hvis ja; Når brukte du det sist? År

Har du brukt homeopatiske midler? Ja ☐ Nei ☐

Hvis ja; Når brukte du det sist? År

Alkohol

Er du totalavholdskvinne? Ja ☐ Nei ☐

Hvis Nei, hvor ofte og hvor mye drakk du i gjennomsnitt siste året? (Sett ett kryss for hver linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2-4 pr. uke	5-6 pr. uke	1+ pr. dag
Øl (1/2 l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vin (glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brennevin (drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sosiale forhold

Er du: (Sett ett kryss)

- ☐ gift ☐ samboer ☐ ugift ☐ skilt
☐ enke

Hvor mange personer er det i ditt hushold?

Hvor mange inntekter er det i ditt hushold?

Hvor mange års utdanning på videregående nivå har du? (gymnas, husmor/yrkesskole etc.)

Hvor mange års utdanning på høyskole/ universitetsnivå har du?

Hvor høy er bruttoinntekten i husholdet pr. år? **+**

- ☐ under 150.000 kr. ☐ 151.000-300.000 kr.
☐ 301.000-450.000 kr. ☐ 451.000-600.000 kr.
☐ 601.000-750.000 kr. ☐ over 750.000 kr.

Hva er din arbeidssituasjon? (sett kryss)

- ☐ Arbeider heltid
☐ Arbeider deltid
☐ Pensjonist
☐ Hjemmearbeidende
☐ Under utdanning
☐ Uføretrygdet
☐ Under attføring
☐ Arbeidssøkende

Hvordan var de økonomiske forhold i oppveksten?

- ☐ Meget gode
☐ Gode
☐ Dårlige
☐ Meget dårlige **+**

Solvaner

Får du fregner når du soler deg? ☐ Ja ☐ Nei

Hvor mange små, regelmessige føflekker har du sammenlagt på begge armene (fra fingrene til armhulene)?

- ☐ 0 ☐ 1-10 ☐ 11-50 ☐ 50+

For å kunne studere effekten av soling på risiko for hudkreft ber vi deg gi opplysninger om hudfarge

Sett ett kryss på den fargen som best passer din hudfarge (uten soling)

Hvor ofte dusjer eller bader du?

- | | mer enn
1 g. dagl. | 1 g.
dagl. | 4-6 g.
pr. uke | 2-3 g.
pr. uke | 1 g.
pr. | 2-3 g.
pr. uke | sjel-
den/
aldri |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Med såpe/shampo | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Uten såpe/shampo | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange ganger pr. år er du blitt forbrent av solen slik at du har fått svie og blemmer med avflassing etterpå?

- | | aldri | høyst 1 g.
pr. år | 2-3 g.
pr. år | 4-5 g.
pr. år | 6 el.
fl. g. |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange uker solte du deg pr. år i syden?

- | | aldri | 1 uke | 2-3
uker | 4-5
uker | 7+
uker |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hvor mange uker pr. år solte du deg i Norge eller utenfor syden?

- | | aldri | 1 uke | 2-3
uker | 4-5
uker | 7+
uker |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Når bruker du krem med solfaktor? (sett evt. flere kryss):

- ☐ i påsken ☐ i Norge eller utenfor syden ☐ solferie i syden
☐ aldri

Hvilken solfaktor bruker du i disse periodene?

- | | påsken | i Norge eller
utenfor syden | solferie i syden |
|-----------------|----------------------|--------------------------------|----------------------|
| i dag | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| for 10 år siden | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Hvilke solkremer bruker du? Angi faktor hvis du husker.

- | | ja | faktor | ja | faktor |
|---------------|--------------------------|----------------------|--------------------------|----------------------|
| Piz Buin | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Ambre Solairè | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| HTH | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Nivea | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Annet | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Cosmica | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Natusan | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Delial | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Vichy | <input type="checkbox"/> | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |

Hvor ofte har du solt deg i solarium?

- | | Aldri | sjelden | 1 g.
pr. mnd. | 2 g.
pr. mnd. | 3-4 g.
pr. mnd. | ofte
enn
1 g. pr. uke |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|
| 1997-2001 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Til slutt vil vi spørre deg om ditt samtykke til å kontakte deg på nytt pr. post. Vi vil hente adressen fra det sentrale personregister.

- Ja ☐ Nei ☐

Takk for at du ville delta i undersøkelsen

Undersøkelsen "KVINNER OG KREFT"



Hvorfor et blått skjema?

I slutten av februar 2002 mottok du et grønt spørreskjema fra oss. I slutten av mai 2002 sendte vi deg et blått spørreskjema.

Hvorfor har du fått et nytt spørreskjema?

I februar sa du deg villig til å være med videre. Det er viktig for oss å se om utfyllingen av skjemaene endrer seg over tid, etter ca. 3 måneder. Derfor vil vi trenge to utfylte skjemaer fra noen av deltakerne. Du er trukket ut tilfeldig blant de som svarte i februar. Vi håper du vil fylle ut nok et skjema og returnere til oss. Skjemaet er helt likt det du fylte ut i februar.

Hvis du har kastet det blå skjemaet, vennligst ring Institutt for samfunnsmedisin tlf. 77 64 66 38 (Bente A. Augdal) eller tlf. 77 64 48 16 (resepsjonen) for å få tilsendt et nytt.

Alle opplysninger fra undersøkelsen behandles konfidensielt og etter Datatilsynets regler.

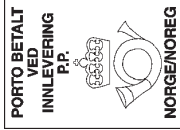
Med vennlig hilsen

*Eiliv Lund
professor dr.med.*



UNIVERSITETET I TROMSØ
INSTITUTT FOR SAMFUNNSMEDISIN

B



APPENDIX C

Original printed material for recall bias study
(2004): letter of introduction, photo booklet,
questionnaire, and reminder card.

(Paper IV)

KVINNER OG KREFT

Orientering om undersøkelsen

Du samtykket tidligere til å fylle ut et spørreskjema som du mottok i posten - Kvinner og Kreft. Spørreskjemaet tok opp en rekke forhold knyttet til ditt liv, som barnefødsler, p-pillebruk, kosthold, røyking og sosiale forhold. Formålet med undersøkelsen var å se om disse forhold har betydning for utvikling av kreft hos kvinner. Resultatene vil bli publisert i dagspressen og i internasjonale fagtidsskrifter. Ansvarlig for undersøkelsen er professor Eiliv Lund.

Vi retter nå en ny forespørsel til deg om du nok en gang vil besvare det vedlagte spørreskjemaet. Begrunnelsen for å kontakte deg på ny er at mange av de spørsmålene du besvarte sist gjaldt levevaner som vi vet endrer seg med alderen. De fleste spørsmålene vil dreie seg om årene siden siste utfylling.

Undersøkelsen er tilrådd av Regional komité for medisinsk forskningsetikk i Nord-Norge. Adressen din henter vi fra det sentrale personregister ved hjelp av Statistisk Sentralbyrå. Som forrige gang inneholder spørreskjemaet kun løpenummer uten annen identifikasjon, for derved å gi dine opplysninger et bedre personvern.

Med noen års mellomrom frem til år 2034 vil vi sammenholde opplysningene som du har gitt i undersøkelsen med opplysninger fra Kreftregisteret og Dødsårsaksregisteret. Ved å studere materialet på nytt, håper vi å finne ut årsakene til at noen kvinner får kreft. Alle opplysningene fra spørreskjemaene og registrene vil bli behandlet konfidensielt og etter de regler Datatilsynet har gitt i sin tillatelse.

Det er frivillig om du vil være med i undersøkelsen. Du kan senere trekke deg uten begrunnelse og uten at det vil få noen konsekvenser for deg. Opplysninger du har gitt kan du be om å få slettet.

Vi vil be deg om å besvare det vedlagte spørreskjemaet så riktig som mulig. Dersom ingen av de oppgitte svaralternativ dekker din situasjon, sett kryss for det alternativet som ligger nærmest. Gi eventuelt merknader eller tilleggsopplysninger i skjemaet. Vi spør også alle som deltar om tillatelse til fornyet kontakt om noen år i form av et liknende spørreskjema.

Vi vil senere kontakte en del av deltakerne for å få tatt en blodprøve. Det vil skje hos nærmeste lege og være gratis. Noen kvinner vil også bli forespurt om å delta i et kostholdsintervju over telefon.

For spørsmål om bruk av hormoner i overgangsalderen finner du bilder i denne brosjyren som skal være et hjelpemiddel (brosjyren skal ikke returneres). Spørreskjemaet sendes tilbake i vedlagte konvolutt som vi betaler svarporto for.

Med hilsen

Eiliv Lund
professor dr.med.

Bente A. Augdal
prosjektmedarbeider

Bilder av hormoner til bruk i og etter overgangsalderen (østrogen)

Denne brosjyren er et hjelpemiddel for å huske riktig navn på de hormontabletter/plaster du har brukt.

Under bildene er det oppgitt hvilke år disse var i salg. For noen hormontabletter/plaster finnes det esker med samme utseende, men med ulik styrke av hormonene. Vi ber deg tenke nøye gjennom navnet på de hormon-tabletter/plaster du har brukt. Eldre avregistrerte preparater er ikke gjengitt med bilder, det gjelder:

- Nr. 104** Etifollin 50 mcg tabletter, solgt fra 1953-2000
- Nr. 121** Menorest 37,5 mcg/24t plaster, solgt fra 1996-2002
- Nr. 122** Menorest 50 mcg/24t plaster, solgt fra 1996-2002
- Nr. 123** Menorest 75 mcg/24t plaster, solgt fra 1996-2002
- Nr. 124** Menorest 100 mcg/24t plaster, solgt fra 1996-2002
- Nr. 196** Primolut tabletter, solgt fra 1958-
- Nr. 197** Perlutex tabletter, solgt fra 1960-
- Nr. 199** Provera 5 og 10 mg tabletter, solgt fra 1964-
- Nr. 202** Diethylstilbøstrol 0,1 mg tabletter solgt fra 1980-85
- Nr. 204** Primodos tabletter solgt fra 1961-74
- Nr. 205** Østriol 1 mg tabletter solgt fra 1975-95
- Nr. 206** Østriol 0,25 mg tabletter solgt fra 1961-83

Nr. 110

Solgt fra 1994-2002



Nr. 111

Solgt fra 1971



Nr. 112

Solgt fra 1989



Nr. 113

Solgt fra 1983



Nr. 114

Solgt fra 1984

Nr. 115

Solgt fra 1995



Nr. 117

Solgt fra 1994



Nr. 116

Solgt fra 1995

Nr. 118

Solgt fra 1989



Nr. 119

Solgt fra 1989



Nr. 120

Solgt fra 1989

Nr. 107 (2mg)

Solgt fra 1967



Nr. 101

Solgt fra 1978

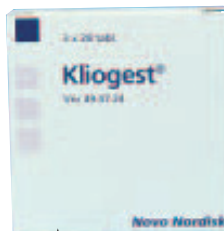


Nr. 102

Solgt fra 1978

Nr. 103

Solgt fra 1978



Nr. 105

Solgt fra 1988



Nr. 106 (1mg) Solgt fra 1970





Nr. 125
Solgt fra 1996.



Nr. 136 Vagifem
Solgt fra 2000



Nr. 138
Climodien
Solgt fra 2001

Nr. 126
Solgt fra 1997.



Nr. 127
Solgt fra 1997.



Nr. 140 Oestril
Solgt fra 1999

Nr. 128
Livial
Solgt fra 1999



Nr. 141
Novofem
Solgt fra 2002

Nr. 143
Estradot 50 mg

Nr. 142
Estradot
37,5 mg

Nr. 144
Estradot 75 mg

Solgt fra 2002

Nr. 145
Estradot 100 mg



Nr. 130
Indivina 1mg/2,5 mg
Solgt fra 2001

Nr. 131
Indivina 1mg/5 mg
Solgt fra 2001

Nr. 146
Estalis
Solgt fra 2002

Nr. 147
Estalis Sekvens
Solgt fra 2003



Nr. 133
Diviseq
Solgt fra 2001



Nr. 134
Climen
Solgt fra 1999



Nr. 135 Activelle
Solgt fra 1999



Nr. 148
Totelle Sekvens
Solgt fra 2003

Bilder av P-pille merker i salg 1965-2003

Denne brosjyren er et hjelpemiddel for å huske riktig navn på de p-piller du har brukt. Under bildene er det oppgitt hvilke år p-pillene var i salg. For noen p-piller finnes det esker med samme utseende, men med ulik størrelse, anhengig av om de inneholder p-piller for en eller flere måneder. Vi ber deg tenke nøye gjennom navnet på de p-pillene du har brukt. Av noen p-piller/merker har vi ikke bilder, det gjelder:

- Nr. 1. **Follistrel**, solgt fra 1973–76
- Nr. 2. **Menokvens**, solgt fra 1971–72
- Nr. 3. **Novokvens**, solgt fra 1969–70
- Nr. 5. **Anovlar Mite**, solgt fra 1967–69
- Nr. 8. **Consan**, solgt fra 1968–70
- Nr. 9. **Delpregnin**, solgt fra 1968–71
- Nr. 14. **Kombikvens**, solgt fra 1971–75
- Nr. 20. **Micronor**, solgt fra 1971–79
- Nr. 22. **Norlestrin**, solgt fra 1965–80
- Nr. 23. **Nyo-Kon**, solgt fra 1968–70
- Nr. 26. **Ortho-Novin Mite**, solgt fra 1968–72
- Nr. 39. **Implanon**, solgt fra 2002–



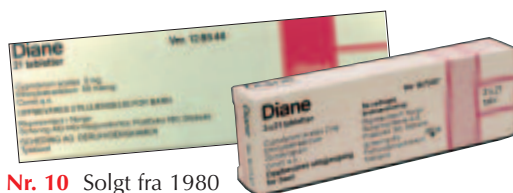
Nr. 4 Solgt fra 1965-68



Nr. 6.
Solgt
fra
1980



Nr. 7 Solgt
fra 1971



Nr. 10 Solgt fra 1980



Nr. 11 Solgt fra 1969



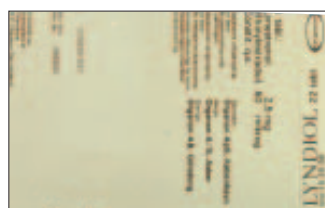
Nr. 12 Solgt fra 1973



Nr. 13 Solgt fra 1978



Nr. 15 Solgt fra
1966-72



Nr. 16 Solgt fra 1965



Nr. 17 Solgt fra 1985



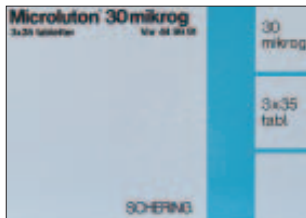
Nr. 18 Solgt fra 1975



Nr. 29 Solgt fra 1973-82



Nr. 30 Solgt fra 1968-84



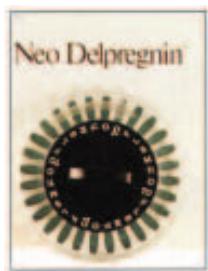
Nr. 19 Solgt fra 1973



Nr. 31 Solgt fra 1977



Nr. 32 Solgt fra 1969-70



Nr. 21 Solgt fra 1971-79



Nr. 33 Solgt fra 1967-69



Nr. 34
Solgt fra 1990



Nr. 24 Solgt fra 1971-81



Nr. 35
Solgt fra 1981



Nr. 36 Solgt fra 1981



Nr. 25 Solgt fra 1966-69



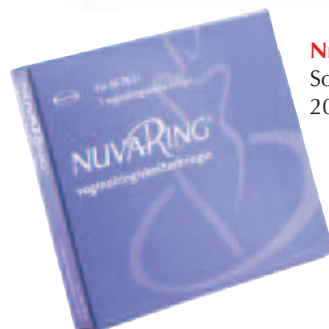
Nr. 38 Solgt fra 2002



Nr. 27 Solgt fra 1965-71



Nr. 37
Solgt fra 2001



Nr. 40
Solgt fra 2003



Nr. 28 Solgt fra 1970

**TAKK
FOR
INNSATSEN!**

KVINNER OG KREFT

Hvis du samtykker i å være med, sett kryss for JA i ruten ved siden av. Dersom du ikke ønsker å delta kan du unngå puring ved å sette kryss for NEI og returnere skjemaet i vedlagte svarkonvolutt. Vi ber deg fylle ut spørreskjemaet så nøyte som mulig.

Skjemaet skal leses optisk. Vennligst bruk blå eller sort penn. Du kan ikke bruke komma, bruk blokkbokstaver.

Med vennlig hilsen
Eiliv Lund
Professor dr. med

KONFIDENSIELT

Jeg samtykker i å delta i ☐ JA
spørreskjemaundersøkelsen ☐ NEI

Overgangsalder

Har du regelmessig menstruasjon fremdeles?

- ☐ Ja ☐ Har uregelmessig menstruasjon
☐ Vet ikke (menstruasjon uteblitt pga. sykdom o.l.)
☐ Bruk av hormonpreparat med østrogen
☐ Nei

+

Hvis Nei;

har den stoppet av seg selv? ☐

har du operert vekk eggstokkene? ☐

har du operert vekk livmoren? ☐

annet? ☐

Alder da menstruasjonen opphørte

Graviditeter, fødsler og amming

Har du noen gang vært gravid? Ja ☐ Nei ☐

Hvis Ja; fyll ut for hvert barn du har født opplysninger om fødselsår og antall måneder du ammet (fylles også ut for døde fødsler eller for barn som er døde senere i livet). Dersom du ikke har født barn fortsetter du ved neste spørsmål.

Barn	Fødselsår	Antall måneder med amming	Barn	Fødselsår	Antall måneder med amming
1	<input type="text"/>	<input type="text"/>	5	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	6	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	7	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>	8	<input type="text"/>	<input type="text"/>

+

Bruk av hormonpreparater med østrogen i overgangsalderen

Har du noen gang brukt østrogen-tabletter/plaster? Ja ☐ Nei ☐

Hvis Ja; hvor mange år har du brukt østrogentabletter/plaster i alt?

Hvor gammel var du første gang du brukte østrogentabletter/plaster?

Bruker du tabletter/plaster nå? Ja ☐ Nei ☐

UTFYLLENDE SPØRSMÅL TIL ALLE SOM HAR BRUKT ELLER BRUKER PREPARATER MED ØSTROGEN I FORM AV TABLETTER ELLER PLASTER.

Hvis du har svart «nei» på spørsmålene om hormonbruk i overgangsalderen, kan du gå videre til spørsmålene under «P-piller». Har du svart «ja», ber vi deg utdype dette nærmere ved å svare på spørsmålene nedenfor. For hver periode med sammenhengende bruk av samme hormonpreparat håper vi du kan si oss hvor gammel du var da du startet, hvor lenge du brukte det samme hormonpreparatet og navnet på dette. Dersom du har hatt opphold eller skiftet merke skal du besvare spørsmålene for en ny periode. Dersom du ikke husker navnet på hormonpreparatet, sett «usikker». For å hjelpe deg til å huske navnet på hormonpreparatene ber vi deg bruke den vedlagte brosjyre som viser bilder av hormonpreparater som har vært solgt i Norge. Vennligst oppgi også nummer på hormontabletten/plasteret som står i brosjyren.

+

+

Periode	Alder ved start	Brukt samme hormon-tablett/plaster/sammenhengende år	Nr.	Hormontablett/plaster/ (se brosjyre) Navn
1.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

P-pillebruk

Har du brukt p-piller eller minipiller? Ja ☐ Nei ☐

Hvis ja, hvor mange år har du brukt p-piller i alt?

Bruker du p-piller nå? Ja ☐ Nei ☐

Hormonspiral

Har du noen gang brukt **hormonspiral** (Levonova)? ☐ Ja ☐ Nei

Hvis Ja; hvor mange hele år har du brukt hormonspiral i alt?

Hvor gammel var du første gang du fikk innsatt **hormonspiral**?

Bruker du **hormonspiral** nå? ☐ Ja ☐ Nei

Østrogenpreparat til lokal bruk i skjeden

Har du noen gang brukt østrogen-krem/stikkpille? ☐ Ja ☐ Nei

Hvis Ja; bruker du krem/stikkpille nå? ☐ Ja ☐ Nei

Selvopplevd helse

Oppfatter du din egen helse som; (Sett ett kryss)

Meget god ☐ God ☐ Dårlig ☐ Meget dårlig ☐ +

Sykdom

Har du eller har du hatt noen av følgende sykdommer?

(sett ett eller flere kryss)

	Ja	Nei	Hvis ja: Alder ved start
Kreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Høyt blodtrykk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Hjertesvikt/hjertekrampe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Hjerteinfarkt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Slag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Sukkersyke (diabetes)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Depresjon (opp søkt lege)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

For følgende tilstander ber vi deg krysse av for hvilket år tilstanden oppsto første gang.

	før 98	98	99	00	01	02	03
Muskelsmerter (myalgi)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fibromyalgi/Fibrositt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kronisk tretthetssyndrom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryggsmerter ukjent årsak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nakkeslengskade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporose (b.skjørhet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Brudd

Underarmen (håndledd)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lårhalsen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryggvirvel (kompresjon)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Andre legemidler

Bruker du noen av disse legemidlene daglig nå?

Fontex, Fluoxetin ☐ Ja ☐ Nei

Cipramil, Citalopram, Desital ☐ Ja ☐ Nei

Seroxat, Paroxetin ☐ Ja ☐ Nei

Zoloft ☐ Ja ☐ Nei

Fevarin ☐ Ja ☐ Nei

Ciprallex ☐ Ja ☐ Nei

Hvis Ja; hvor lenge har du brukt dette legemidlet sammenhengende? Måneder År

Har du benyttet noen av disse legemidlene tidligere? ☐ Ja ☐ Nei

Hvis Ja; hvor lenge har du benyttet disse legemidlene i alt? År

Høyde og vekt

Hvor høy er du? (i hele cm)

Hvor mye veier du i dag? (i hele kg)

Hvor mye veide du da du var 18 år? (i hele kg)

Kroppstype i 1. klasse. (Sett ett kryss)

☐ Veldig tynn ☐ Tynn ☐ Normal ☐ Tykk ☐ Veldig tykk

Røykevaner

Har du i løpet av livet røykt mer enn 100 sigaretter til sammen? ☐ Ja ☐ Nei

Hvis Ja, ber vi deg fylle ut for de siste fem årene hvor mange sigaretter du i gjennomsnitt røykte pr. dag i denne perioden.

Antall sigaretter pr. dag

0	1-4	5-9	10-14	15-19	20-24	25+
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor gammel var du da du tok din første sigarett?

Røyker du daglig nå? ☐ Ja ☐ Nei

Hvis Nei, hvor gammel var du da du sluttet?

Røykte noen av dine foreldre da du var barn? ☐ Ja ☐ Nei

Hvis Ja, hvor mange sigaretter røykte de til sammen pr. dag? (antall)

Brystkreft i nærmeste familie

Har noen nære slektninger hatt brystkreft?

	Ja	Nei	Vet ikke	Alder ved start
Datter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Mor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Søster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

+

Mammografiundersøkelse

Har du vært til undersøkelse av brystene med mammografi

Ja ☐ Nei ☐

Hvis Ja;

hvor gammel var du første gangen? (hele år).....

Hvor mange ganger har du vært undersøkt?

-etter invitasjon fra Mammografiprogrammet.....	<input type="text"/>
-etter henvisning fra lege.....	<input type="text"/>
-uten henvisning fra lege.....	<input type="text"/>

Fysisk aktivitet

Vi ber deg angi din fysiske aktivitet etter en skala fra svært liten til svært mye ved 14 års alder, ved 30 års alder og i dag. Skalaen nedenfor går fra 1-10. Med fysisk aktivitet mener vi både arbeid i hjemmet og i yrkeslivet samt trening og annen fysisk aktivitet som turgåing ol.

Alder	Svært lite										Svært mye									
14 år	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
30 år	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
I dag	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10

+

Hvor mange timer pr. dag i gjennomsnitt går eller spaserer du utendørs?

	sjelden/ aldri	mindre enn 1/2 time	1/2-1 time	1-2 timer	mer enn 2 timer
Vinter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vår	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sommer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Høst	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

For hver av følgende aktiviteter du deltar i, ber vi deg oppgi hvor mange minutter pr. dag du bruker i gjennomsnitt til hver av aktivitetene.

Fritidsaktivitet

	Vinter	Vår	Sommer	Høst
Se på TV.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Lesing.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Håndarbeid.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Hagearbeid.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dusj/bad/egenpleie.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Trening/jogging.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sykling.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mange hele timer pr. dag bruker du på arbeidsplassen i gjennomsnitt til å

Sitte.....	<input type="text"/>
Stå.....	<input type="text"/>
Gå.....	<input type="text"/>
Løfte.....	<input type="text"/>
Tunge løft/pleie.....	<input type="text"/>

Hvor mange trapper (hele etasjer) går du i gjennomsnitt pr. dag.

Kosthold

Påvirker noen av følgende forhold kostholdet ditt?

(sett gjerne flere kryss)

- | | |
|--|---|
| <input type="checkbox"/> Er vegetarianer/veganer | <input type="checkbox"/> Har anoreksi |
| <input type="checkbox"/> Spiser ikke norsk kost til daglig | <input type="checkbox"/> Har bulimi |
| <input type="checkbox"/> Har allergi/intoleranse | <input type="checkbox"/> Prøver å gå ned i vekt |
| <input type="checkbox"/> Kronisk sykdom | |

Vi er interessert i å få kjennskap til hvordan kostholdet ditt er vanligvis. Kryss av for hvert spørsmål om hvor ofte du i gjennomsnitt siste året har brukt den aktuelle matvaren, og hvor mye du pleier å spise/drikke hver gang.

Drikke

Hvor mange glass melk drikker du vanligvis av hver type? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-4 pr. uke	5-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Helmelk (søt, sur).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettmelk (søt, sur).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ekstra lettmelk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skummet (søt, sur).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

Hvor mange kopper kaffe/te drikker du vanligvis av hver sort? (Sett ett kryss for hver linje)

	aldri/sjelden	1-6 pr. uke	1 pr. dag	2-3 pr. dag	4-5 pr. dag	6-7 pr. dag	8+ pr. dag
Kokekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traktekaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulverkaffe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Svart te	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grønn te	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du følgende i kaffe eller te:

	Kaffe		Te	
Sukker (ikke kunstig søtstoff)	<input type="checkbox"/> Ja	<input type="checkbox"/> Nei	<input type="checkbox"/> Ja	<input type="checkbox"/> Nei
Melk eller fløte	<input type="checkbox"/> Ja	<input type="checkbox"/> Nei	<input type="checkbox"/> Ja	<input type="checkbox"/> Nei

Hvor mange glass vann drikker du vanligvis?

(Sett ett kryss for hver linje)

	aldri/sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Springvann/flaskevann	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange glass appelsinjuice, saft og brus drikker du vanligvis? (Sett ett kryss for hver linje)

	aldri/sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Appelsinjuice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus med sukker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saft/brus sukkerfri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Yoghurt/kornblanding

Hvor ofte spiser du yoghurt (1 beger)? (Sett ett kryss)

☐ Aldri/sjelden ☐ 1 pr. uke ☐ 2-3 pr. uke ☐ 4+ pr. uke

Hvor ofte spiser du kornblanding, havregryn eller müsli? (Sett ett kryss)

☐ Aldri/sjelden ☐ 1-3 pr. uke ☐ 4-6 pr. uke ☐ 1 pr. dag

Brødmat

Hvor mange skiver brød/rundstykker og knekkebrød/skonrokker spiser du vanligvis?

(1/2 rundstykke = 1 brødskive) (Sett ett kryss for hver linje)

	aldri/sjelden	1-4 pr. uke	5-7 pr. uke	2-3 pr. dag	4-5 pr. dag	6+ pr. dag
Grovt brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kneipp/halvfint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fint brød	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knekkebrød o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I neste spalte er det spørsmål om bruk av ulike påleggs-typer. Vi spør om hvor mange brødskiver med det aktuelle pålegget du pleier å spise. Dersom du også bruker matvarene i andre sammenhenger enn til brød (f. eks. til vafler, frokostblandinger, grøt), ber vi om at du tar med dette når du besvarer spørsmålene.

På hvor mange brødskiver bruker du? (Sett ett kryss pr. linje)

	Aldri/sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
Syltetøy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brunost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brunost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, helfet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvitost, halvfet/mager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttpålegg, Leverpostei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rekesalat, italiensk o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

På hvor mange brødskiver pr. uke har du i gjennomsnitt siste året spist? (Sett ett kryss pr. linje)

	Aldri/sjelden	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7-9 pr. uke	10+ pr. uke
Makrell i tomat, røkt makrell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaviar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild/Ansjos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks (gravet/røkt)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annet fiskepålegg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Hva slags fett bruker du vanligvis på brødet?

(Sett gjerne flere kryss)

- ☐ Bruker ikke fett på brødet
☐ Smør
☐ Hard margarin (f. eks. Per, Melange)
☐ Myk margarin (f. eks. Soft, Vita, Solsikke)
☐ Smørblandet margarin (f.eks. Bremyk)
☐ Brelett
☐ Lettmargarin (f. eks. Soft light, Letta)
☐ Middels lett margarin (f. eks. Olivero, Omega)

Dersom du bruker fett på brødet, hvor tykt lag pleier du å smøre på? (En kuvertpakke med margarin veier 12 gram).

(Sett ett kryss)

☐ Skrapet (3 g) ☐ Tynt lag (5 g) ☐ Godt dekket (8 g) ☐ Tykt lag (12 g)

Frukt og grønnsaker

Hvor ofte spiser du frukt? (Sett ett kryss pr. linje)

	aldri/sjelden	1-3 pr. mnd.	1 pr. uke	2-4 pr. uke	5-6 pr. uke	1 pr. dag	2+ pr. dag
Epler/pærer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appelsiner o.l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bananer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen frukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du ulike typer grønnsaker?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2 pr.uke	3 pr.uke	4-5 pr.uke	6-7 pr.uke
Gulrøtter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kålrot.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brokkoli/blomkål.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blandet salat.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tomat.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grønnsakblan- ding (frossen).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre grøn- saker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



For de grønnsakene du spiser, kryss av for hvor mye du spiser hver gang. (Sett ett kryss for hver sort)

- gulrøtter	<input type="checkbox"/> 1/2 stk.	<input type="checkbox"/> 1 stk.	<input type="checkbox"/> 1 1/2 stk.	<input type="checkbox"/> 2+ stk.
- kål	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- kålrot	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 1 1/2 dl	<input type="checkbox"/> 2+ dl
- brokkoli/blomkål	<input type="checkbox"/> 1-2 buketter	<input type="checkbox"/> 3-4 buketter	<input type="checkbox"/> 5+ buketter	
- blandet salat	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3 dl	<input type="checkbox"/> 4+ dl
- tomat	<input type="checkbox"/> 1/4	<input type="checkbox"/> 1/2	<input type="checkbox"/> 1	<input type="checkbox"/> 2+
- grønnsakblanding	<input type="checkbox"/> 1/2 dl	<input type="checkbox"/> 1 dl	<input type="checkbox"/> 2 dl	<input type="checkbox"/> 3+ dl

Hvor mange poteter spiser du vanligvis (kokte, stekte, mos)? (Sett ett kryss)

☐ Spiser ikke/spiser sjelden poteter

☐ 1-4 pr. uke ☐ 5-6 pr. uke ☐ 1 pr. dag ☐ 2 pr. dag

☐ 3 pr. dag ☐ 4+ pr. dag

Ris, spaghetti, grøt

Hvor ofte bruker du ris og spaghetti/makaroni ?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2 pr. uke	3+ pr.uke
Ris.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spagetti, makaroni, nudler.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Hvor ofte spiser du grøt ? (Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2-6 pr. uke	1+ pr. dag
Risengrynsgrot.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen grøt (havre o.l.).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fisk

Vi vil gjerne vite hvor ofte du pleier å spise fisk, og ber deg fylle ut spørsmålene om fiskeforbruk så godt du kan. Tilgangen på fisk kan variere gjennom året. Vær vennlig å markere i hvilke årstider du spiser de ulike fiskesla-gene.

	aldri/ sjelden	like mye hele året	vinter	vår	sommer	høst
Torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Med tanke på de periodene av året der du spiser fisk, hvor ofte pleier du å spise følgende til middag? +

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Kokt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stekt torsk, sei, hyse, lyr.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steinbit, flyndre, uer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laks, ørret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makrell.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sild.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen fisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fisk, hvor mye spiser du vanligvis pr. gang? (1 skive/stykke = 150 gram)

Kokt fisk (skive) ☐ 1 ☐ 1,5 ☐ 2 ☐ 3+

Stekt fisk (stykke) ☐ 1 ☐ 1,5 ☐ 2 ☐ 3+



Hvor mange ganger pr. år spiser du fiskeinnmat?

(Sett ett kryss pr. linje)

	0	1-3	4-6	7-9	10+
Rogn.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiskelever.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser fiskelever, hvor mange spise-skjeer pleier du å spise hver gang? (Sett ett kryss)

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3-4	<input type="checkbox"/> 5-6	<input type="checkbox"/> 7+
----------------------------	----------------------------	------------------------------	------------------------------	-----------------------------

Hvor ofte bruker du følgende typer fiskemat?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Fiskekaker/pudding/boller.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plukkfisk/fiskegrateng.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frityrisk/fiskepinner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre fiskeretter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor stor mengde pleier du vanligvis å spise av de ulike rettene? (Sett ett kryss for hver linje)

- fiskekaker/pudding/boller (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
(2 fiskeboller=1 fiskekake)
- plukkfisk, fiskegrateng (dl) ☐ 1-2 ☐ 3-4 ☐ 5+
- fritryfisk, fiskepinner (stk.) ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7+



I tillegg til informasjon om fiskeforbruk er det viktig å få kartlagt hvilket tilbehør som blir servert til fisk.

Hvor ofte bruker du følgende til fisk? (Sett ett kryss pr. linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
Smeltet/fast smør	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smeltet/fast margarin/fett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seterrømme (35%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettrømme (20%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus med fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saus uten fett (hvit/brun)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For de ulike typene tilbehør du bruker til fisk, vær vennlig å kryss av for hvor mye du vanligvis pleier å spise.

- smeltet/fast smør (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- smeltet/fast margarin (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- seterrømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- lettrømme (ss) ☐ 1/2 ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- saus med fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+
- saus uten fett (dl) ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 2+

Hvor ofte spiser du skaldyr (f. eks. reker, krabbe og skjell)? (Sett ett kryss)

- ☐ Aldri/sjelden ☐ 1 pr. mnd ☐ 2-3 pr. mnd ☐ 1+ pr. uke



Andre matvarer

Hvor ofte spiser du reinkjøtt?

- ☐ Aldri/sjelden ☐ 1 pr. mnd. ☐ 2-3 pr. mnd. ☐ 1 pr. uke
- ☐ 2-3 pr. uke ☐ 4+ pr. uke



Hvor ofte spiser du følgende kjøtt- og fjærkreter?

(Sett ett kryss for hver rett)

	aldri/ sjelden	1 pr.mnd.	2-3 pr.mnd.	1 pr.uke	2+ pr.uke
Steik (okse, svin, får)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koteletter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjøttkaker, karbonader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pølser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gryterett, lapskaus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pizza med kjøtt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kylling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre kjøttretter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser følgende retter, oppgi mengden du vanligvis spiser: (Sett ett kryss for hver linje)

- steik (skiver) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- koteletter (stk.) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- kjøttkaker, karbonader (stk.) ☐ 1 ☐ 2 ☐ 3 ☐ 4+
- pølser (stk. à 150g) ☐ 1/2 ☐ 1 ☐ 1,5 ☐ 2+
- gryterett, lapskaus (dl) ☐ 1-2 ☐ 3 ☐ 4 ☐ 5+
- pizza m/kjøtt (stykke à 100 g) ☐ 1 ☐ 2 ☐ 3 ☐ 4+

Hvor mange egg spiser du vanligvis i løpet av en uke? (stekte, kokte, eggerøre, omelett) (Sett ett kryss)

- ☐ 0 ☐ 1 ☐ 2 ☐ 3-4
- ☐ 5-6 ☐ 7+



Hvor ofte spiser du iskrem? (til dessert, krone-is osv.)

Sett ett kryss for hvor ofte du spiser iskrem om sommeren, og ett kryss for resten av året

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr.uke
-Om sommeren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Resten av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye is spiser du vanligvis pr. gang? (Sett ett kryss)

- ☐ 1dl ☐ 2 dl ☐ 3 dl ☐ 4+ dl

Hvor ofte spiser du bakevarer som boller kaker, wienerbrød eller småkaker (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	1+ pr.dag
Gjærbakst (boller o.l.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wienerbrød, kringle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pannekaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vafler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Småkaker, kjeks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du dessert? (Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	1 pr. dag
Pudding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sjokolade/karamell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riskrem, fromasj	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kompott, fruktgrøt, hermetisk frukt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jordbær (friske, frosne)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre bær (friske, frosne)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiser du sjokolade? (Sett ett kryss)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	1+ pr.dag
Mørk sjokolade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lys sjokolade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dersom du spiser sjokolade, hvor mye pleier du vanligvis å spise hver gang? Tenk deg størrelsen på en

Kvikk-Lunsj sjokolade, og oppgi hvor mye du spiser i forhold til den.

☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 1 ☐ 1,5 ☐ 2+

Hvor ofte spiser du snacks? (Sett ett kryss)

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-3 pr. uke	4-6 pr. uke	7+ pr. uke
Potetchips.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peanøtter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre nøtter.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annen snacks.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tran og fiskeoljekapsler

Bruker du tran (flytende)? Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du tran?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mye tran pleier du å ta hver gang?

☐ 1 ts. ☐ 1/2 ss. ☐ 1+ ss.

Bruker du tranpiller/fiskeoljekapsler? Ja ☐ Nei ☐

Hvis ja; hvor ofte tar du tranpiller/fiskeoljekapsler?

Sett ett kryss for hver linje.

	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
Om vinteren.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resten av året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvilken type tranpiller/fiskeoljekapsler bruker du vanligvis, og hvor mange pleier du å ta hver gang?

Antall

Navn _____

Kosttilskudd

Bruker du kosttilskudd? Ja ☐ Nei ☐

Hvis ja, hvor ofte bruker du kosttilskudd?

(Sett ett kryss pr. linje)

Navn på vitamin/mineralttilskudd:	aldri/ sjelden	1-3 pr. mnd.	1 pr. uke	2-6 pr. uke	daglig
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bruker du soyapreparater mot plager i overgangsalderen?

Ja ☐ Nei ☐

Kosthold i 1998

Vi er interessert i opplysninger om kostholdet ditt fra 1998. For å huske tilbake kan du prøve å tenke på din daværende livssituasjon (bosted, arbeid, familie) eller på spesielle hendelser.

På hvor mange brødskeer brukte du kjøttpålegg og leverpostei i 1998? (sett ett kryss)

Aldri/ sjelden	1-3 pr. uke	4-6 pr. uke	1 pr. dag	2-3 pr. dag	4+ pr. dag
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte spiste du kjøttkaker/karbonader i 1998? (sett ett kryss)

Aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2+ pr. uke
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvis du spiste kjøttkaker/karbonader, oppgi mengden du vanligvis spiste: (sett ett kryss)

Antall 1 ☐ 2 ☐ 3 ☐ 4+ ☐

Hvor vanskelig var det å svare på disse spørsmålene om kostholdet ditt i 1998?

Lett	Litt vanskelig	Vanskelig	Umulig	Usikker
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kosthold som barn

Hvor mye melk drakk du som barn hver dag? (sett ett kryss)

☐ drakk ikke melk ☐ 1-3 glass ☐ 4-6 glass ☐ 7 glass eller mer

Hvor ofte spiste du grønnsaker til middag som barn?

(sett ett kryss)

☐ aldri ☐ 1 gang i uken eller mer sjelden
☐ 2-3 ganger i uken ☐ 4 eller flere ganger pr. uke

Alkohol

Er du totalavholdskvinne? Ja ☐ Nei ☐

Hvis Nei; hvor ofte og hvor mye drakk du i gjennomsnitt siste året? (Sett ett kryss for hver linje)

	aldri/ sjelden	1 pr. mnd.	2-3 pr. mnd.	1 pr. uke	2-4 pr. uke	5-6 pr. uke	1 pr. dag	2+ pr. dag
Øl (1/2 l)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vin (glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brennevin (drink)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likør/Hetvin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sosiale forhold

Er du idag: (Sett ett kryss)

☐ gift ☐ samboer ☐ ugift ☐ skilt ☐ enke

Hvor mange personer er det i ditt hushold?

Hvor høy er bruttoinntekten i husholdet pr. år?

inntil 150.000 kr.	<input type="checkbox"/>	151.000-300.000 kr.	<input type="checkbox"/>
301.000-450.000 kr.	<input type="checkbox"/>	451.000-600.000 kr.	<input type="checkbox"/>
601.000-750.000 kr.	<input type="checkbox"/>	over 750.000 kr.	<input type="checkbox"/>

Hva er din arbeidssituasjon? (sett ett eller flere kryss)

- ☐ Arbeider heltid ☐ Arbeider deltid ☐ Pensjonist
- ☐ Hjemmearbeidende ☐ Under utdanning ☐ Uføretrygdet
- ☐ Under attføring ☐ Arbeidssøkende

Arbeider du utendørs i yrkessammenheng? Ja ☐ Nei ☐

Hvis Ja; hvor mange timer pr. uke? Sommer Vinter

Solvaner

Får du fregner når du soler deg? Ja ☐ Nei ☐

Hvilken øyefarge har du? (sett ett kryss)

- ☐ brun ☐ grå, grønn eller blanding ☐ blå

Hvilken hårfarge har du? (sett ett kryss)

- ☐ mørkbrun, svart ☐ brun ☐ blond, gul ☐ rød

Dersom du i begynnelsen av sommeren soler deg kraftig, blir huden din; (sett ett kryss)

- ☐ brun, uten først å være rød ☐ rød
- ☐ rød med svie ☐ rød med svie og blemmer

Etter gjentatt og lenge soling, blir huden din; (sett ett kryss)

- ☐ dypt brun ☐ brun ☐ lys brun ☐ aldri brun

For å kunne studere effekten av soling på risiko for hudkreft, ber vi deg gi opplysninger om hudfarge.

Sett ett kryss på det tallet under fargen som best passer din naturlige hudfarge (uten soling).

1	2	3	4	5	6	7	8	9	10

Hvor mange ganger pr. år er du blitt forbrent av solen slik at du har fått svie eller blemmer med avflassing etterpå? (ett kryss for hver aldersgruppe)

Alder	Aldri	Høyst 1 gang pr. år	2-3 g. pr. år	4-5 g. pr. år	6 eller flere ganger pr. år
Før 10 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-19 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20-29 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-39 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40-49 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50 + år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siste 12 mnd.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor mange uker i gjennomsnitt pr. år har du vært på badeferie i syden eller i Norge?

Alder	Aldri	1 uke	2-3 uker	4-5 uker	7 uker eller mer
Før 10 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-19 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20-29 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-39 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40-49 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50 + år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siste 12 mnd.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte har du solt deg i solarium?

Alder	Aldri	Sjelden	1 gang pr. mnd.	2 ganger pr. mnd.	3-4 ganger pr. mnd.	ofte enn 1 gang pr. uke
Før 10 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-19 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20-29 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30-39 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40-49 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50+ år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siste 12 mnd.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hvor ofte dusjer eller bader du?

	mer enn 1 g. dagl.	1 g. dagl.	4-6 g. pr. uke	2-3 g. pr. uke	1 g. pr. uke	2-3 g. pr. mnd.	sjelden/ aldri
Med såpe/shampo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uten såpe/shampo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Når bruker du krem med solfaktor? (sett evt. flere kryss):

- ☐ i påsken ☐ i Norge eller utenfor syden ☐ solferie i syden
- ☐ aldri

Hvilken solfaktor bruker du i disse periodene?

	påsken	i Norge eller utenfor syden	solferie i syden
I dag	<input type="text"/>	<input type="text"/>	<input type="text"/>
For 10 år siden	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hvor mange uregelmessige føflekker større enn 5 mm har du sammenlagt på begge beina (fra tærne til lysken)? Tre eksempler på føflekker større enn 5 mm med uregelmessig form er vist nedenfor.

- ☐ 0 ☐ 1 ☐ 2-3 ☐ 4-6 ☐ 7-12 ☐ 13-24 ☐ 25+



5 mm

Hvor ofte bruker du følgende hudpleiemidler?

(Sett ett kryss pr. linje)

	aldri/ sjelden	1-3 pr.mnd.	1 pr.uke	2-4 pr.uke	5-6 pr.uke	1 pr.dag	2+ pr. dag
Ansiktskrem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Håndkrem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Body lotion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parfyme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Til slutt vil vi spørre deg om ditt samtykke til å kontakte deg på nytt pr. post. Vi vil hente adressen fra det sentrale personregister.

Ja ☐ Nei ☐

Er du villig til å avgi en blodprøve?

Ja ☐ Nei ☐

Takk for at du ville delta i undersøkelsen

Undersøkelsen "KVINNER OG KREFT"



Vi minner om at vi nylig har sendt deg et spørreskjema som vi håper du tar deg tid til å svare på. Ditt svar er et viktig bidrag for oss, fordi slutningene vi kan trekke ut fra undersøkelsen vil være mer pålitelige dersom mange har svart.

Vi ønsker at resultatene fra undersøkelsen skal komme deg og andre kvinner til gode. Du velger likevel selv om du vil delta i undersøkelsen.

Hvis du nylig har returnert skjemaet, ber vi deg se bort fra denne henvendelsen. Vi takker for verdifull bistand.

Alle opplysninger fra undersøkelsen behandles konfidensielt og etter Datatilsynets regler.

Har du spørsmål om undersøkelsen, eller trenger du et nytt spørreskjema, kan du kontakte Institutt for samfunnsmedisin, Universitetet i Tromsø, 9037 Tromsø, Bente A. Augdal tlf. 77 64 66 38

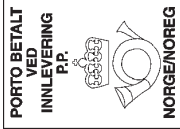
Med vennlig hilsen

*Eiliv Lund
professor dr.med.*



UNIVERSITETET I TROMSØ
INSTITUTT FOR SAMFUNNSMEDISIN

B



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APPENDIX D

Original printed material for recall bias study
(enrolment): sample page of melanoma risk factor
section in 1991/92 and 1996/97.

(Paper IV)

Kosthold

For hver matsort nedenfor ber vi deg krysse av i den ruten som passer hvor ofte du i gjennomsnitt i løpet av siste år har spist slik mat.

	6-10 pr dag	4-5 pr dag	2-3 pr dag	1 pr dag	5-6 pr uke	2-4 pr uke	1 pr uke	1-3 pr måned	Nesten aldri
Helmelk (glass)									
Skummet melk (glass)									
Lettmelk (glass)									
Kokekaffe (kopper)									
Traktekaffe (kopper)									
Pulverkaffe (kopper)									
Grov brød (skiver)									
Fint brød (skiver)									
Ost (skiver)									
Poteter									
Epler/pærer									
Appelsiner o.l.									

Middag

	6-7 pr uke	4-5 pr uke	3 pr uke	2 pr uke	1 pr uke	2-3 pr måned	1 pr måned	Nesten aldri
Rent kjøtt								
Oppmalt kjøtt								
Fet fisk (makrell, laks o.l.)								
Mager fisk (torsk o.l.)								
Ris, spaghetti								
Gulerøtter								
Kål								
Kålrot								
Salat								
Broccoli/Blomkål								

Hva slags fett blir vanligvis brukt i din husholdning?

	På brød	Til matlaging
Smør eller hard margarin		
Myk (soft) margarin eller olje		
Smør/margarin blanding		

Hvor mye melk drakk du som barn hver dag?

☐ drakk ikke melk ☐ 1-3 glass ☐ 4-6 glass ☐ 7 glass eller mer

Hvor ofte spiste du grønnsaker til middag som barn?

☐ aldri ☐ 1 gang i uken eller mer sjelden
☐ 2-3 ganger i uken ☐ 4 eller flere ganger

Alkohol

Er du total avholdskvinne?

Ja ☐ Nei ☐

Hvis Nei, hvor ofte og hvor mye drakk du i gjennomsnitt siste året?

	6-10 pr dag	4-5 pr dag	2-3 pr dag	1 pr dag	5-6 pr uke	2-4 pr uke	1 pr uke	1-3 pr måned	Nesten aldri
Øl (1/2 liter)									
Vin (glass)									
Brennevin (drinker)									

Solvaner

Dersom du i begynnelsen av sommeren soler deg kraftig, blir huden din; (Sett ett kryss)

☐ brun uten å først være rød ☐ rød
☐ rød med svie ☐ rød med svie og blemmer

Etter gjentatt og lenge soling, blir huden din;

(Sett ett kryss)

☐ dypt brun ☐ brun ☐ lys brun ☐ aldri brun

Hvor mange uregelmessige føflekker større enn 5 mm har du sammenlagt på begge beina (fra tærne til lysken)?

(På siste side av brosjyren er det bilder som viser hva vi mener med uregelmessige føflekker.)

☐ 0 ☐ 1 ☐ 2-3 ☐ 4-6 ☐ 7-12 ☐ 13-24 ☐ 25+

Hvilken øyefarve har du? (Sett ett kryss)

☐ brun ☐ grå, grønn eller blanding ☐ blå

Hvilken hårfarve har du? (Sett ett kryss)

☐ mørkbrun, svart ☐ brun ☐ blond, gul ☐ rød

Hvor mange ganger pr. år er du blitt forbrent av solen slik at du har fått svie eller blemmer med avflassing etterpå? (Ett kryss for hver aldersgruppe)

Alder	Aldri	Høyst 1 gang pr. år	2-3 g. pr. år	4-5 g. pr. år	6 eller flere ganger
Før 10 år					
10-19 år					
20-29 år					
30-39 år					
40-49 år					

Hvor mange uker i gjennomsnitt pr. år har du vært på badeferie i syden eller i Norge?

Alder	Aldri	1 uke	2-3 uker	4-6 uker	7 uker eller mer
Før 10 år					
10-19 år					
20-29 år					
30-39 år					
40-49 år					

Hvor ofte har du solt deg i solarium?

Alder	Aldri	Sjelden	1 gang pr. mnd.	2 gang pr. mnd.	3-4 gang pr. mnd.	ofte enn 1 gang pr. uke
Før 10 år						
10-19 år						
20-29 år						
30-39 år						
40-49 år						

Takk for at du ville delta i undersøkelsen!

Mikrobølgeovn

Har du mikrobølgeovn?

☐ Ja ☐ Nei

Hvis Ja; hvor mange ganger pr. uke bruker du mikrobølgeovnen til

ganger pr. uke

middagslaging?

.....

annet?

.....

Hvor mange ganger pr. måned spiser du på:

ganger pr. mnd.

kafeteria/kantine

.....

pizza/hamburger restaurant

.....

hvitduks-restaurant

.....

Kosthold som barnHvor mye melk drakk du som barn hver dag?☐ drakk ikke ☐ 1-3 glass ☐ 4-6 glass☐ 7 glass eller merHvor ofte spiste du grønnsaker til middag som barn?☐ aldri ☐ 1 gang i uken eller mer sjelden☐ 2-3 ganger i uken ☐ 4 eller flere ganger pr. ukeHvor ofte spiste du fisk til middag som barn?

(Sett ett kryss)

aldri/sjelden

1 pr. mnd.

2-3 pr. mnd

1 pr. uke

☐☐☐☐

2 pr. uke

3 pr. uke

4+ pr. uke

☐☐☐

I hvilken grad mener du kostholdet ditt har betydning for helsa?

☐ ingen/svært liten ☐ noen ☐ stor ☐ svært stor**Solvaner**

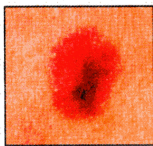
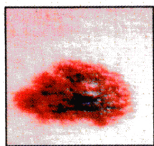
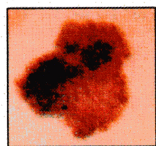
Dersom du i begynnelsen av sommeren soler deg kraftig, blir huden din; (sett ett kryss)

☐ brun uten først å være rød ☐ rød☐ rød med svie ☐ rød med svie og blemmer

Etter gjentatt og lenge soling, blir huden din; (sett ett kryss)

☐ dypt brun ☐ brun ☐ lys brun ☐ aldri brun

Hvor mange uregelmessige føflekker større enn 5 mm har du sammenlagt på begge beina (fra tærne til lysken)? Tre eksempler på føflekker større enn 5 mm med uregelmessig form er vist nedenfor.

☐ 0 ☐ 1 ☐ 2-3 ☐ 4-6 ☐ 7-12 ☐ 13-24 ☐ 25+

5 mm

Hvilken øyefarge har du? (sett ett kryss)

☐ brun ☐ grå, grønn eller blanding ☐ blå

Hvilken hårfarge har du? (sett ett kryss)

☐ mørkbrunt, svart ☐ brun ☐ blond, gul ☐ rød

Hvor mange ganger pr. år er du blitt forbrent av solen slik at du har fått svie og blemmer med avflassing etterpå? (ett kryss for hver aldersgruppe)

Alder	Aldri	Høyst 1 gang pr. år	2-3 g. pr. år	4-5 g. pr. år	6 eller flere ganger
Før 10 år					
10-19 år					
20-44 år					
45+ år					

Hvor mange uker i gjennomsnitt pr. år har du vært på badeferie i syden eller i Norge?

Alder	Aldri	1 uke	2-3 uker	4-5 uker	7 uker eller mer
Før 10 år					
10-19 år					
20-45 år					
45+ år					

Hvor ofte har du solt deg i solarium?

Alder	Aldri	Sjelden	1 gang pr. mnd.	2 ganger pr. mnd.	3-4 ganger pr. mnd.	oftere enn 1 gang pr. uke
Før 10 år						
10-19 år						
20-44 år						
45+ år						

Hvilken solfaktor bruker du?

Påske Sommer

I dag

.....

For 10 år siden

.....

Hvor ofte dusjer eller bader du?

	Mer enn 1 g dagl	1 g dagl	4-6 g pr. uke	2-3 g pr. uke	1 g pr. uke	2-3 g pr. mnd.	Sjelden aldri
Med såpe/shampo							
Uten såpe/shampo							

*Takk for at du ville delta i
undersøkelsen*

APPENDIX E

Internal NOWAC note in Norwegian describing dietary intake calculations and modifications of program.

(Paper I and II)

Næringsutregning NOWAC serie 32, 33 og 34

Skrevet av Christine L. Parr

Sist oppdatert: 17. desember 2007

Studie og utvalg

Denne KK-studien av reproduserbarhet (test-retest) består av 2.gangsskjema til 96/97 kohorten, samt et retest-skjema (3.gangsutsending) besvart av 1496 kvinner. Svar på spørsmål om kosthold fra 2.gangsskjema (serie 32 + 33) skal sammenlignes med svar fra retesten (serie 34). Skjemaene ble sendt ut våren 2002 med 2-3 mnd. mellomrom. Av de som hadde svart på 2.gangsskjema før 4. april 2002, ble 2000 kvinner trukket ut til å besvare retesten. Skjemaene hadde identiske spørsmål, med unntak av p-piller som ble fjernet fra serie 33 pga. høy alder hos kvinnene. P-piller er derfor heller ikke med i serie 34.

Tabell 1 Oversikt over utvalget i studien

Serie	Skjema 96/97 kohorten	F. år	Spurt	Besvart	Svar %
32 (test)	2.gang (feb./mars 2002)	1943-57	16554	13577	82 %
33 (test)	2.gang (feb./mars 2002)	1927-42	19352	14933	77 %
34 (retest)	3.gang (mai 2003)	1927-57	2000	1496	75 %

Næringsutregning

Næringsutregningen er gjort av ernæringsfysiolog Christine L. Parr (Avdeling for medisinsk statistikk, UiO) i samarbeid med programmerer Elin Alsaker (Institutt for samfunnsmedisin, UiTØ) for 1496 kvinner som har besvart skjema for test og retest. To personer er utelatt, den ene fordi spørreskjemaet ble gitt ved en feiltagelse, og den andre fordi skjemaet fremdeles lå hos puncheservice 2.3.2004. Programfilene for serie 31 (gult skjema, 4 sider med bare kostholdsspørsmål fra høsten 2001) har vært brukt som utgangspunkt for å lage et program tilpasset skjemaene for serie 32, 33 og 34. Filene for å beregne gram matvarer/grupper og næringsstoff er slått sammen til ett program som gjør begge deler.

Tabell 2 Oversikt over programfiler

Serie 31 (gul)		Serie 32,33,34	
Programfiler	Beregning	Programfil	Beregning
NOWAC_gprdag_gul_02.sas	Matvarer/	KK_s32s33s34_gdag_nstoff.sas (Sist modifisert 19.4.2004)	matvarer/matvaregrupper
(Sist modifisert 16.10.2002)	grupper		(g per person, per dag)
Næringsutrekning_gul_02.sas	Næringsstoff		& næringsstoffer
(Sist modifisert 16.10.2002)			

Skjema for serie 32,33,34

Optisk lesing

Skjemaene fra serie 32, 33 og 34 er lest optisk. Dette medfører noen endringer i forhold til manuell punching:

- I innlesningsprogrammet får spørsmål med avkryssing kun ha de svaralternativene som er prekodet på spørreskjemaet. I praksis blir ikke ekstra opplysninger som er skrevet på skjemaene lenger registrert. Koder for svaralternativer som “sporadisk” eller “sesongvariasjon” (ofte 8 eller 9) er derfor fjernet i KK_s32s33s34_gdag_nstoff.sas
- Det kan allikevel finnes verdier utenfor det definerte området i rådatafila fra puncheservice. Skanneren deres stopper når det er satt flere kryss for samme spørsmål, noe som er ganske vanlig. Den som skanner må da velge ett alternativ. Her skjer det punche-feil som kan gi “ulovlige” verdier, spesielt i store serier. Disse må rettes opp før programmet kjøres, ellers blir ikke svarene beregnet.
- I skjemaet til serie 32, 33 og 34 er de 4 svaralternativene for variablene YOGHURT, MUSLI og TYKTLAG fordelt på 2 linjer som optisk leses horisontalt i rekkefølgen (0-2-1-3) i forhold til økende inntak (0-1-2-3). Variabelverdiene i rådatafila fra puncheservice har derfor blitt kodet om for å få en input fil som stemmer med næringsutregningsprogrammet.

Ny matvare: reinsdyrkjøtt

Reinsdyrkjøtt er eneste nye matvare i skjemaene for serie 32, 33 og 34, sammenlignet med serie 31. Det er ikke spurt om porsjon for reinsdyrkjøtt, derfor er porsjonsspørsmål for steik brukt for å beregne mengden. I matvaregruppene blir reinsdyrkjøtt regnet med i gram rent kjøtt, og gram kjøtt & kjøttprodukter. I utregningsprogrammet har reinsdyrkjøtt fått matvarekoden “Matv359”. Denne brukes bare internt.

Tabell 3 Beregning av gram reinsdyrkjøtt

Navn i skjema S 32,33,34	Matvaretabell 2001	Andel	Enhet i skjema	Enhet utregning	Vekt
Reinkjøtt	Rein, steik	3.115	100	-	Skive (steik)
					35

Nye frekvenser: iskrem

I skjemaene for serie 32, 33 og 34 og programfila er frekvensene for “Hvor ofte spiser du iskrem” justert lavere i forhold til serie 31, men antall svaralternativer er det samme.

Tabell 4 Frekvenser for “Hvor ofte spiser du iskrem?”

SOMMERIS, AARETIS	Skjema og program; serie 31	Skjema og program; serie 32,33,34
Variabelverdi	Frekvenser	Frekvenser
0	aldri/sjelden	aldri/sjelden
1	1-3 pr mnd	1 pr mnd
2	1 pr uke	2-3 pr mnd
3	2-3 pr uke	1 pr uke
4	4+ pr uke	2+ pr uke

Andre endringer i programfila for serie 32,33, 34

Nye variabelnavn

Det har kommet en ny “standard” for variabelnavn og variabelkoding for alle 2.gangsskjema (serie 25,26,27,28,29, samt 32 og 33 i denne studien) for at samme variabel skal være lik i alle filene. Serie 28 og 29 er brukt som referanse. For å følge denne standarden, er navnene i programfila endret for noen frekvensvariabler, og én type fett på brød (Tabell 5), samt alle årstidsvariabler for fisk (Tabell 6).

Tabell 5 Oversikt over navneendringer av frekvensvariabler og type fett på brød

Matvare	Gult program, serie 31	KK_s32s33s34_gdag_nstoff.sas
Ekstra lettmeik	MELKEKS	MELKEKST
Kneip/halvfint brød	KNEIP	BRODHALV
Annen fisk	BFISK	ANNENFIS
Boller	BOLLER	BOLLBAKST
Middels lett margarin	MIDMARG	MIDLIGHT2

Tabell 6 Oversikt over navneendring av årstidsvariabler for fisk

Variabelnavn, gult program	Variabelnavn, 2.gangsutsendinger i KK &
“NOWAC_gprdag_gul_02.sas”	“KK_s32s33s34_gdag_nstoff.sas ”
LYR1-LYR6	LYR, TORKVIN, TORSKVAR, TORSKSOM, TORSKHOS
UER1-UER6	UER, STEINVIN, STEINVAR, STEINSOM, STEINHOS
ORRET1-ORRET6	ORRET, LAKSVIN, LAKSVAR, LAKSSOM, LAKSHOS
MAKRVA1-MAKRVA6	MAKRVAAR, MAKRVIN, MAKRVAR, MAKRSOM, MAKRHOS
SILDVA1-SILDVA6	SILDVAAR, SILDVIN, SILDVAR, SILDSOM, SILDHOS
AFISK1-AFISK6	ANNVAAR, ANNVIN, ANNVAR, ANNSOM, ANNHOS

De nye variablene LYR, UER, MAKRVAAR, SILDVAAR, ANNVAAR er en sammenslåing av to variabler i rådatafila. Eksempelvis erstatter variabelen LYR både LYR1 og LYR2. Dette krever at variablene kodes om. De fire årstidene (vinter, vår, sommer og høst) er fortsatt egne variabler som før. Se eget avsnitt om årstidsvariasjon i fisk.

Fett på brødet

Fett på brødet blir i hovedsak beregnet på samme måte som i gult program, men MIDMARG heter MIDLIGHT2, variabelkodingen av IKKE2 (Bruker ikke fett på brødet) er endret og beregningsmåten er endret på ett punkt.

Koding av variabelen IKKE2 (Bruker ikke fett på brødet)

Svaralternativet for “Bruker ikke fett på brødet”/IKKE2 i spørreskjemaet til serie 31 og seriene 32, 33, 34 er i utgangspunktet en enkel avkrysningsboks hvor 0=kryss/besvart og 1=ikke kryss/ubesvart. For type(r) fett er også 0=kryss/besvart og 1=ikke kryss/ubesvart. Mengde har verdi missing, hvis ubesvart. Programmet til serie 32,33,34 beregner fett på brødet basert på at IKKE2 kun har verdiene 0 og 1, mens gult program er basert på at IKKE2 er kodet om til å ha flere verdier:

Tabell 7 Oversikt over koding av variabelen IKKE2 (Bruker ikke fett på brødet)

IKKE2 (variabelverdi)	Program; serie 31 (gult)	Program; serie 32,33,34
0	Kryss/besvart	Kryss/besvart
1	Ikke kryss/ikke besvart	Ikke kryss/ikke besvart
2	Kryss “Bruker ikke” & type(r)	-
.	Ikke kryss “Bruker ikke” el. type(r)	-

Beregningsmåte for fett på brødet

Fett på brødet blir beregnet ut fra tre parametere (bruker ikke, type og mengde) som vist i tabellen under. Parameterne er enten besvart eller ubesvart. Dette gir i alt åtte ulike kombinasjoner som programmet må ta høyde for. I programmet for serie 32,33,34 er det kun én av kombinasjonene som blir behandlet forskjellig fra gult program:

Tabell 8 Oversikt over beregning av fett på brødet i ulike program

Parameter			Gult program, serie 31	Serie
				32, 33, 34
<i>Bruker ikke</i>	<i>Type(r)</i>	<i>Mengde</i>	<i>Konsum</i>	<i>Konsum</i>
Svart	Svart	Svart	Mengde reduseres 50 %	Mengde reduseres 50 %
Svart	Svart	Ikke svart	Flere typer fordeles likt	Flere typer fordeles likt
			Minste mengde	Minste mengde
			Mengde reduseres 50%	Mengde reduseres 50%
Svart	Ikke svart	Svart	Flere typer fordeles likt	Flere typer fordeles likt
			Null konsum (ENDRET!)	Mengde reduseres 50%
				Type=Soft2
Svart	Ikke svart	Ikke svart	Null konsum	Null konsum
Ikke svart	Svart	Svart	Flere typer fordeles likt	Flere typer fordeles likt
Ikke svart	Svart	Ikke svart	Minste mengde	Minste mengde
			Typer fordeles likt	Typer fordeles likt
Ikke svart	Ikke svart	Svart	Type=Soft2	Type=Soft2
Ikke svart	Ikke svart	Ikke svart	Null konsum	Null konsum
(Referanse: Elin Alsaker for Gult program, Christine L. Parr for Serie 32,33,34.)				

(Referanse: Elin Alsaker for Gult program, Christine L. Parr for Serie 32,33,34.)

Den nye programkoden ligger som Vedlegg 1 i dette dokumentet.

Årstidsvariasjon i fisk

Dette programmet beregner årstidsvariasjon i fisk med variabelnavn og koding som i serie 28 og 29 (EPIC) pga. samordningen av alle filene for 2.gangsskjema. Selve beregningsmåten er også endret i forhold til gult program.

Koding av årstidsvariasjon i fisk

Variablene LYR, UER, MAKRVAAR, SILDVAAR, ANNVAAR er kodet slik at 0=aldri/sjelden, 1=hele året, 8=aldri/sjelden+hele året. Missing betyr at det ikke er krysset av for verken aldri/sjelden,

eller hele året. For de andre årstidsvariablene (vinter, vår, sommer og høst) er 1=kryss og 0=ikke kryss. Dette er **MOTSATT** av vanlig praksis og verdiene fra den optiske lesingen (hvor 0=kryss og 1=ikke kryss), men i tråd med tidligere koding av 2.gangsskjema. Disse variablene har ikke missing.

Tabell 9 Eksempel på forskjeller i variabelnavn og koding for årstidsvariasjon i fisk

Gult program, serie 31		KK_s32s33s34_gdag_nstoff.sas	
Variabelnavn	Koding	Variabelnavn	Koding
LYR1=Aldri/sjelden	0=Kryss 1=Ikke kryss	LYR	0=Aldri/sjelden, 1=Hele året, 8=Aldri/sjelden & Hele året, ”.”=Ingen kryss
LYR2=Hele året	0=Kryss 1=Ikke kryss		
LYR3--LYR6=Vår, sommer, høst, vinter	0=Kryss 1=Ikke kryss	TORKVIN--TORSKHOS	<u>1=Kryss, 0=Ikke kryss</u>

Beregningsmåte for årstidsvariasjon i fisk

Årstidsvariasjon i fisk har blitt beregnet på ulike måter i ulike program. For serie 32, 33 og 34 blir årstid beregnet som vist i tabellen under ut fra tre parametere (aldri/sjelden, hele året og årstider), Disse er enten besvart eller ubesvart, til sammen åtte kombinasjoner. Noen av kombinasjonene er inkonsekvente, og den faglige vurderingen av hvordan disse blir behandlet, kan diskuteres.

Tabell 10 Oversikt over beregning av årstidsvariasjon i fisk i ulike program

Parameter			KK98	Gult program, serie 31	Serie 32, 33, 34
			(Norsk EPIC)		
<i>Aldri/sjelden</i>	<i>Hele året</i>	<i>Årstid</i>	<i>Konsum årstid</i>	<i>Konsum årstid</i>	<i>Konsum årstid</i>
Svart	Svart	Svart	(Sum årstider?)	Hele året	Halve året (NY)
Svart	Svart	Ikke svart	(Null konsum?)	Hele året	Halve året (NY)
Svart	Ikke svart	Svart	Sum årstider	Sum årstider	50% av sum årstider (NY)
Svart	Ikke svart	Ikke svart	Null årstid	Null årstid	Null årstid
Ikke svart	Svart	Svart	Sum årstider	Hele året	Hele året
Ikke svart	Svart	Ikke svart	Hele året	Hele året	Hele året
Ikke svart	Ikke svart	Svart	Sum årstider	Sum årstider	Sum årstider
Ikke svart	Ikke svart	Ikke svart	Halve året	Halve året	Halve året

(Referanse: Elin Alsaker for KK98 og Gult program, Christine L. Parr for Serie 32,33,34.)

Kokt & rå grønnsaker

I gult program for serie 31 blir grønnsakene gulrøtter, kål, kålrot og brokkoli/blomkål regnet som rå, mens de nå er splittet i rå/kokt på samme måte som i 2001 EPIC. Porsjoner for de kokte grønnsakene er justert for koketap. Dokumentasjonen “Næringsutrekning EPIC 2001.doc” fra 28.5.2003 oppgir tallene som er brukt for % andelene (frekvens) for kokt/rå, porsjonsstørrelser og % tap av vann.

Tabell 11 Frekvensandeler for rå & kokte grønnsaker

Grønnsak	Gult program, serie 31 Andel rå/kokt (frekvens)	2001 EPIC & KK_s32s33s34_gdag_nstoff.sas Andel rå/kokt (frekvens)
Gulrot	Rå=100 %	Rå/kokt=50/50 %
Kål	Rå=100 %	Rå/kokt=60/ 40 %
Kålrot	Rå=100 %	Rå/kokt=30/70 %
Brokkoli/blomkål	Rå=100 %	Rå/kokt=10 /50 % brokkoli & 10/30 % blomkål

Spørsmålet “Andre grønnsaker” blir nå også beregnet på samme måte som i 2001 EPIC. Koden for rå løk er byttet med kokt løk, og det er gitt et tillegg for stekeolje. Porsjonene for løk og mais justeres for koketap.

Tabell 12 Beregningen av “andre grønnsaker”

	Gult program, serie 31 Andre grønnsaker Frekvensandel/brutto ¹	2001 EPIC& KK_s32s33s34_gdag_nstoff.sas Andre grønnsaker Frekvensandel/brutto ²
Erter, frosne	12 %	Erter, frosne 12 %
Løk, rå	51 %	Løk, kokt (ny) 45 %
Mais, herm.	21 %	Mais, herm. 21 %
Sopp, herm.	16 %	Sopp, herm. 14 %
-		Olje (ny) 8 %
Sum	100 %	100 %

¹Referanse: programfilene “nowac_gprdag_gul_02.sas”, “næringsutrekning_gul_02.sas” og dokumentasjonsfil “Næringsutrekning 2001 NOWAC.rtf” fra 29.4.2003

²Referanse: programfilene “epic_gprdag20012.sas” og “epic2001 næringsutrekning2.sas”. Dokumentasjonsfila “Næringsutrekning EPIC 2001.doc” fra 28.5.2003 oppgir netto andeler etter at det er tatt hensyn til porsjonsstørrelse, spiselig del og koketap. Disse er ikke oppgitt her.

Kokt & stekt fisk/kjøtt

Tilberedt fisk og kjøtt er beregnet på samme måte som i gult program for serie 31. Det er i størst mulig grad brukt koder for tilberedt vare i matvaretabellen. For stekt fisk og kjøtt er det ikke tatt andre hensyn til svinn/opptak av fett enn det som er tatt høyde for i matvaretabellen. I mangel av koder for tilberedt mat, er kode for rå vare brukt, eller en lignende tilberedt matvare. For eksempel beregnes flatbiff av storfe (under spørsmål om biff) som stekt flatbiff av svin. Men det er også mulig at 24-timers recall har vist at mye av biffen/fileten som spises, er fra svin.

Tran & fiskeolje

- Merkenavn på tranpiller/kapsler er tilgjengelig i serie 34. Dataene bekrefter at Møllers tran og Møllers dobbel er omtrent like populære. Beregningen av mengden tran (1 kapsel= 0.937 g tran; en mellomting mellom vanlig tran og dobbel) er derfor ikke endret fra gult program .
- Merkenavn på fiskeoljekapsler er også tilgjengelig i serie 34, men mengden blir ikke beregnet i programmet for serie 32,33,34. Variabelen for navn trenger omfattende opprydding før den kan brukes, og det må hentes inn opplysninger om innholdet i de mange ulike produktene.
- For serie 32 er ikke merkenavn på trankapsler tilgjengelig på fil per i dag. Navnene er trolig blitt kodet som tall (synlig på skjemaene), men ikke skannet. For fiskeoljekapsler virker skanningen veldig ufullstendig (98 % missing). I denne test-retest studien vil vi eventuelt bare se på reproduserbarhet av bruksfrekvens og antall piller for tran- og fiskeoljekapsler.
- For antall tranpiller er koden 98 fjernet fra programmet, siden denne trolig ikke vil bli brukt når skjemaene leses optisk.

Missing

- I beregning av fett på brødet blir de fettypene som ikke er besvart, satt til missing i gult program for serie 31, men null gram i programmet for serie 32,33,34. For alle andre matvarer blir missing frekvens beregnet som null gram i begge program.
- Missing frekvens for tran, tranpiller og alkohol i gult program for serie 31 blir telt opp uten å ta hensyn til de betingede spørsmålene “Bruker du tran” (ja/nei), “Bruker du tranpiller/kapsler” (ja/nei), “Er du totalavholdskvinne” (ja/nei). I programmet for serie 32,33,34 telles missing frekvens kun for de som ikke har bekreftet at de ikke bruker. Antall missing blir derfor lavere.
- Opptellingen av FREQMIS variabelen er fjernet fra programmet for serie 32,33,34 og tenkt erstattet med en summering av alle FOODMISS variablene. Dette vil også ta mindre plass.

Foreløpig ligger ikke koden i programmet. I denne studien vil det være interessant å summere missing på flere ulike måter, og dette gjøres i analysen.

Merkelapp/labels på variabler

- I gult program for serie 31 har alle variablene for frekvens og missing merkelapp “Gram per dag”. Programkoden er nå utvidet (v/Elin Alsaker) med noen få linjer som endrer “Gram” til “Freq/uke” for frekvens, og “Missing freq” for missing. Det ble komplisert å ta bort “per dag”, så dette står som før.
- Variabelen GRANFISK (gram andre fiskeretter) hadde merkelapp “Gram anna fisk pr dag”. Denne er nå endret til “Gram andre fiskeretter pr dag” for ikke å forveksle den med variabelen GRAFISK (gram annen fisk) som har merkelapp “Gram annan fisk pr dag”.
- Merkelappen for GRBROD er utvidet til også å ha med kneip/halvfint brød: “Gram brød (grovt, kneip, fint, knekkeb)”.

Kvalitative opplysninger om fett i matlaging

Elin Alsaker har laget et forslag til hvordan programmet kan ta hensyn til kvalitative opplysninger om bruk av fett i matlaging. Dette er kun aktuelt for oppskrifter på saus med fett (hvit/brun), siden stekt kjøtt og fisk beregnes med koder for stekt mat i matvaretabellen. Forslaget er basert på at olje ikke brukes i saus, bare smør og margarin (myk/hard/smørblandet). Hvis det er krysset for flere typer smør/margarin, blir mengden fett i oppskriften fordelt likt på disse typene. Dersom det er krysset av for både smør/margarin og olje, blir det ikke tatt hensyn til oljen. Hvis det bare er krysset av for olje, eller spørsmålet er ubesvart, må vi sette en type fett, evt. uspesifikt fett.

Forslaget er foreløpig ikke lagt inn i programmet fordi det vil ha liten betydning i denne studien, hvor vi ikke skal analysere på fettsyrer. Spørsmålene om bruk av fett i matlaging er også fjernet fra det siste KK-skjemaet (serie 35).

Oppskrifter

Oppskrifter er bare brukt for saus med og uten fett (hvit/brun), og riskrem, slik det ligger i gult program. I denne studien av reproduserbarhet er det i utgangspunktet ikke nødvendig å splitte opp tilberedte matvarer for å kunne analysere på ingrediensene.

Matvaretabellen fra 2001

Matvaretabellen som er kjørt sammen med programmet er “Matvaretabellen2001_Stor tabell_m ref_offisiell pr 20-08-03.xls” (fra Guri Skeie). Den ble konvertert til SAS-format med programmet DBMS-Copy og behandlet med modifytables (av Elin Alsaker) for å få en kjørbær fil (som også har avrunda tall). Deretter ble spiselig del for kylling, samt kokt og stekt fisk endret i samsvar med dokumentasjonen for “Næringsutregning NOWAC serie 31” (gult skjema). Noen verdier er satt ned, mens missing har fått anslåtte verdier.

Alle matvaretabellkodene i gult program er beholdt, med unntak av rå løk under “Andre grønnsaker” som er byttet ut med kokt løk. (Kode for stekt løk mangler foreløpig). For nye matvarer (reinsdyr) og for kokte grønnsaker (gulrot, kål, kålrot og brokkoli/blomkål) er det lagt til nye koder.

Sammenslåing av gamle program

Programmet for serie 32,33,34 regner ut både gram per dag for matvarer/grupper og næringsstoff per dag, og er en sammenslåing av to tidligere program som gjorde dette separat. Det er tatt utgangspunkt i gult program (for serie 31) for gram matvarer. Der hvor programmet kobler med spiselig del i matvaretabellen for å beregne netto mengde, blir det laget en ekstra fil som inneholder netto mengde, samt matvarenr. Utregningen av næringsstoff tar utgangspunkt i denne fila som heter “Nettogr”. Koden ligger helt til slutt i programmet. Programmet beregner nå også % energi fra protein, fett, karbohydrat, sukker og alkohol.

Input fil for nytt program

Programmet “KK_s32s33s34_gdag_nstoff.sas” krever at input filen har variabelnavn og koding som er i tråd med den nye standarden for 2.gangsskjema. (Se det som står skrevet om variabelnavn og koding under avsnittene “Nye variabelnavn”, “Fett på brødet” og “Årstidsvariasjon i fisk” på side 3-6.) I tillegg er det variabler som må kodes om spesielt for serie 32, 33 og 34 på grunn av layouten til skjemaene. For kosthold gjelder dette YOGHURT, MUSLI og TYKTLAG (se avsnittet om optisk lesing). Alle endringer i rådatafilen fra puncheservice er gjort av Elin Alsaker ved ISM. Hun har levert ut to filer (ferdig omkodet) med hele test-skjemaet (s32s33ch.sas7bdat) og retest-skjemaet (s34ch.sas7bdat) for 1495 damer til Christine L. Parr 2.3.2004. (Det er 2 damer som er ekskludert; én fordi test skjemaet fortsatt lå hos puncheservice, og én ble med i trekkgrunnet ved en feil). De variablene som inngår i næringsberegningen, blir plukket ut i en egen fil som brukes direkte som input fil i programmet.

Vedlegg 1: Beregning av fett på brød

Dette er koden fra næringsutregningsprogrammet til serie 32,33 og 34 (KK_s32s33s34_gdag_nstoff.sas) som tilsvarer beregningene i Tabell 8.

SPISEFETT PÅ BRØDET;

***mengde feitt pr brødskeiv:**

if tyktlag = 0 then skivfegr = 3;

else if tyktlag = 1 then skivfegr = 5;

else if tyktlag = 2 then skivfegr = 8;

else if tyktlag = 3 then skivfegr = 12;

if tyktlag=. then tyktlag_miss=1;

else tyktlag_miss=0;

***Summerer antall typer fett på brød, fra 0-7:**

anttyp=sum((1-smor2),(1-per2),(1-soft2),(1-brem2),(1-lett2),(1-light2),(1-midmarg));

***Bestemmer mengde når mengde er missing:**

if anttyp = 0 and tyktlag = . then skivfegr = 0; *Bruker ikke, el. alle spørsmål ubesvart;

if anttyp > 0 and tyktlag = . then skivfegr = 3; *Minste mengde, hvis type er oppgitt;

***Reduserer mengde 50% hvis ikke2=0 (bruker ikke), men mengde og/el. type er oppgitt:**

if ikke2 = 0 and (anttyp > 0 or tyktlag ne .) then skivfegr = 0.5*skivfegr;

***Setter type=soft2 hvis mengde er besvart, men ikke type:**

if anttyp = 0 and tyktlag ne . then do;

soft2 = 0;

anttyp = 1;

***Egen missing-variabel for type når ikke2 (bruker ikke) er ubesvart:**

if ikke2 = 1 and anttyp = 0 then fettbrod_miss = 1;

else fettbrod_miss = 0;

***mengde feitt på brød pr dag:**

brodfegr = skivfegr*(sum(brodgrfr,kneipfr,brodiffr,brodknfr));

*** --- Så kan vi beregne mengden fett for hver fett-type:**

***Setter alle mengder=0:**

SMOERED =0;

HMARGED =0;

MMARGED =0;

BREMYED =0;

BRELED =0;

LMARGAED =0;

MIDMARED =0;

```
*Deler total mengde fett på antall typer som er besvart;
```

```
if anttyp >0 then do;  
    del =1/anttyp;  
    if smor2 =0 then SMOERED =brodfegr*del;  
    if per2 =0 then HMARGED =brodfegr*del;  
    if soft2 =0 then MMARGED =brodfegr*del;  
    if brem2 =0 then BREMYED =brodfegr*del;  
    if lett2 =0 then BRELED =brodfegr*del;  
    if light2 =0 then LMARGAED =brodfegr*del;  
    if midmarg =0 then MIDMARED =brodfegr*del;  
end;
```

Vedlegg 2: Beregning av årstidsvariasjon i fisk:

Dette er koden fra næringsutregningsprogrammet til serie 32,33 og 34 (KK s32s33s34 _gdag_nstoff.sas) som tilsvarer beregningene i Tabell 10. Koden repeteres for hvert fiskeslag.

```
tidlyr=sum(torkvin,torskvar,torsksom,torskfos);      *Verdi 0-4;  
if lyr=. and tidlyr = 0 then arlyr = 0.5;            *Alt er missing;  
else if lyr = 0 and tidlyr = 0 then arlyr = 0;        *Aldri/sjelden & ingen årstid;  
else if lyr = 0 and tidlyr > 0 then arlyr = (0.25*tidlyr)*0.5; *Aldri/sjelden + årstid=50% red. av årstid;  
else if lyr = 1 then arlyr = 1;                      *Hele året, med el. uten årstid;  
else if lyr = 8 then arlyr = 0.5;                    *Aldri/sjelden + hele året, med el. uten årstid;  
else arlyr = 0.25*tidlyr;                            *Kun årstider;
```